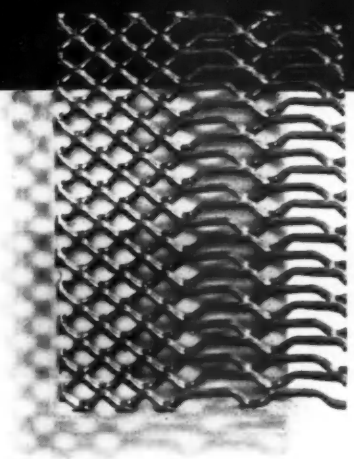
The Council of Industrial Design

July 1958 No 115 Price 3s

Design



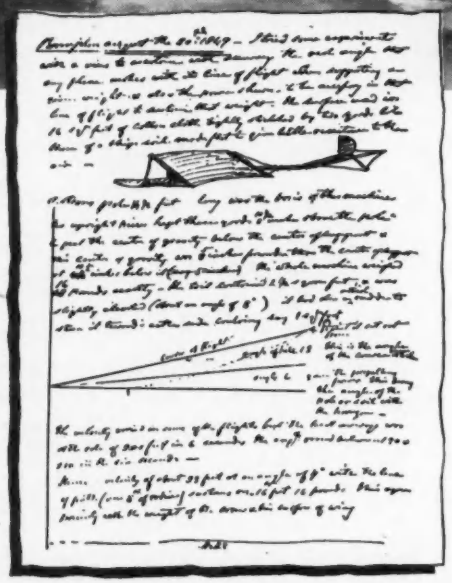
WSD462

PERIODICALS

PROFILE OF A CREATIVE MIND

No. 13 *Aerodynamicist*

Scientist and inventor, Sir George Cayley (1773-1857) has been described as the Father of the Modern Aeroplane for he was the first to lay down the scientific principles of heavier-than-air flight.



While other men tried unsuccessfully to imitate birds by flapping artificial wings, Cayley saw the solution to man's conquest of the air in the child's kite and the windmill. He reasoned that a kite, flying at an angle against the wind and held there by its string, was a potential wing. And that the windmill could be adapted as a propeller although an engine light and powerful enough had yet to be developed. In 1804, Cayley put his theory in practice by building a model glider, which was the first aeroplane in history. It had a five-foot pole for a fuselage, a wing fitted at a slight angle and, at the rear, a combined elevator and rudder to balance and control the glider in flight. Fifty years later came his real triumph—a full-size glider which carried aloft Cayley's reluctant coachman, the first man ever to fly in a heavier-than-air machine.

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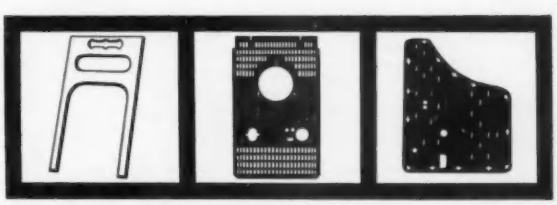

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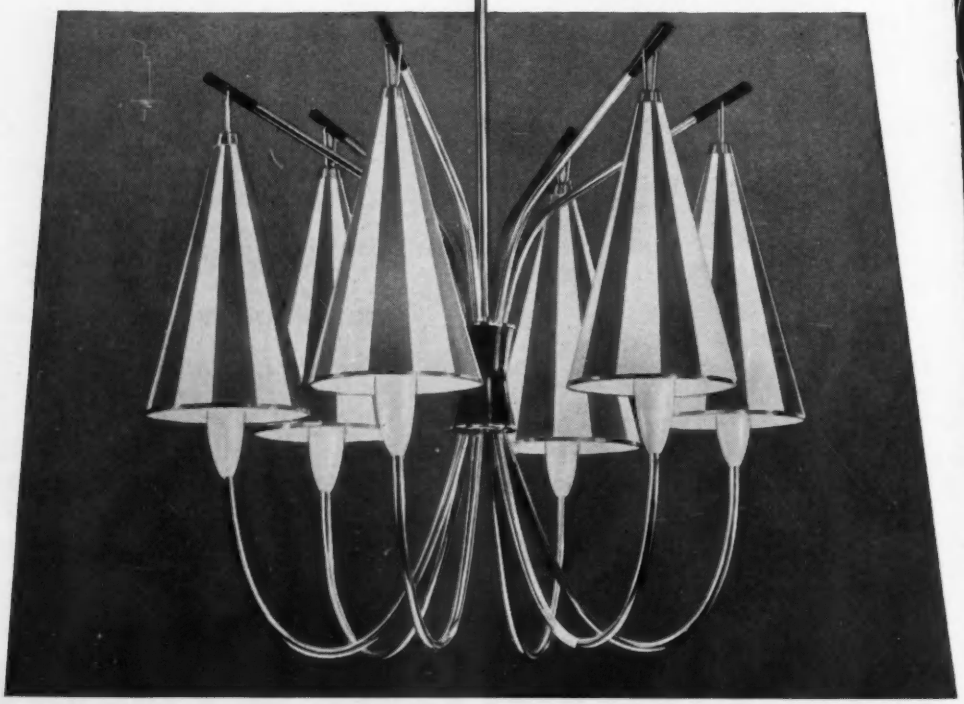

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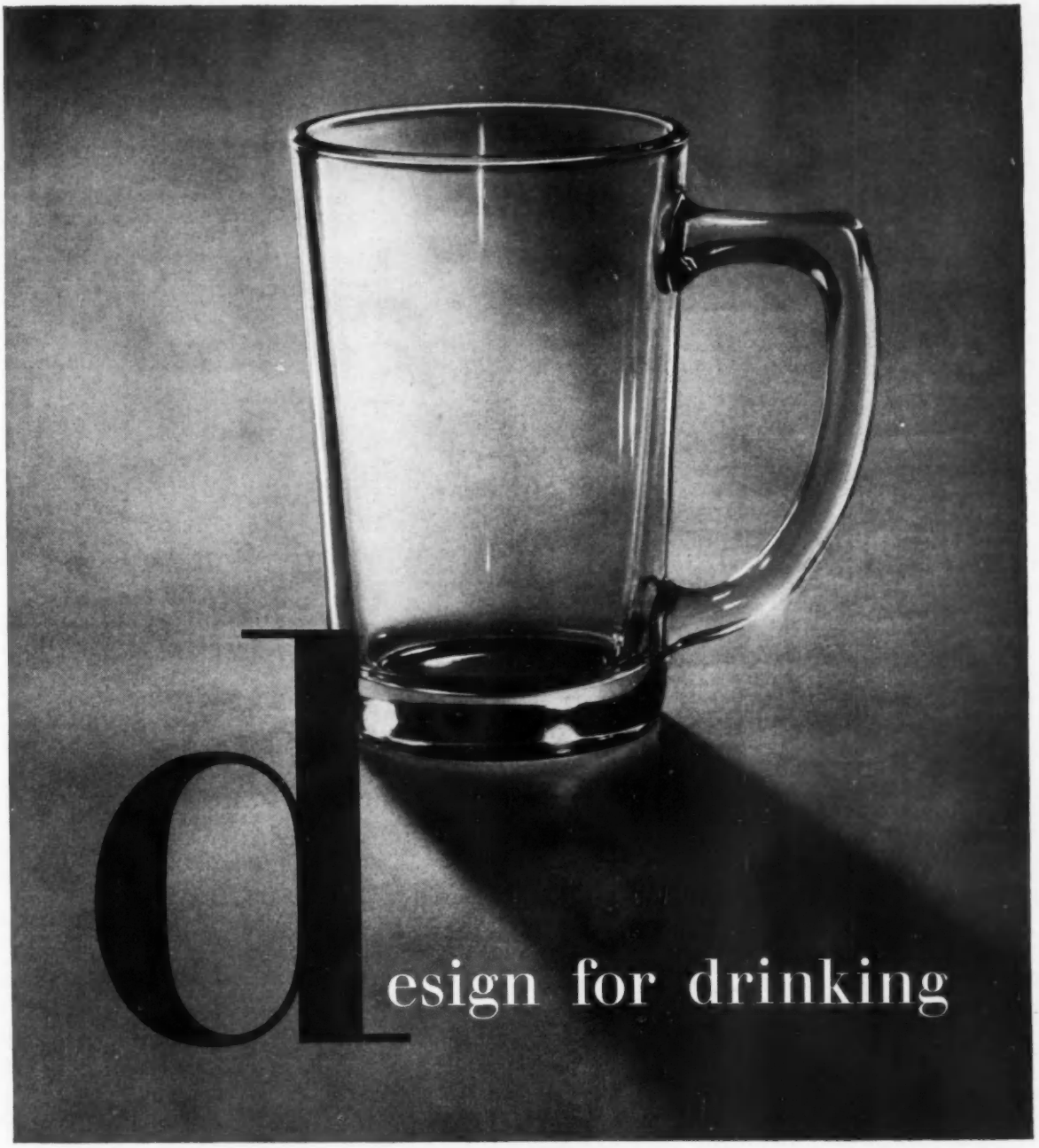

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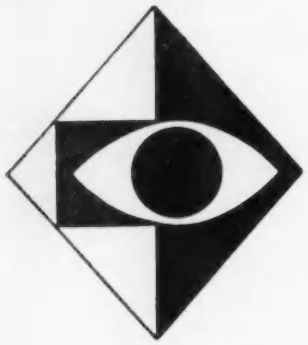

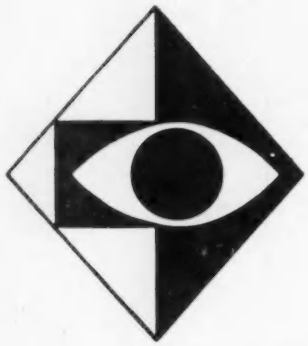

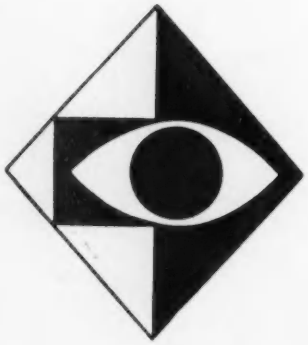

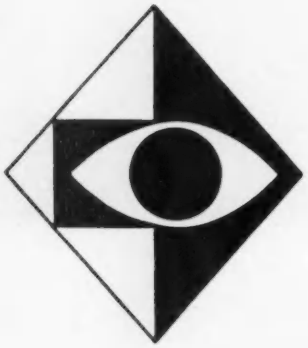

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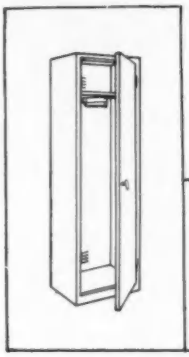
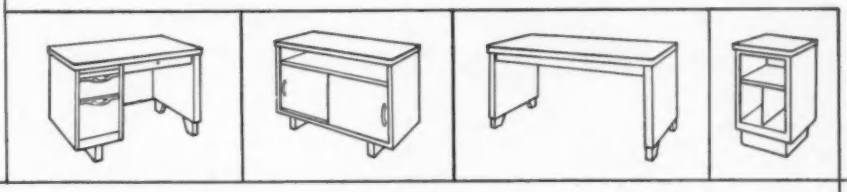
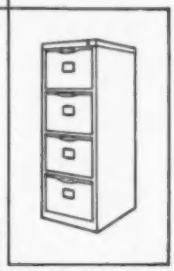


Not just a desk . . .





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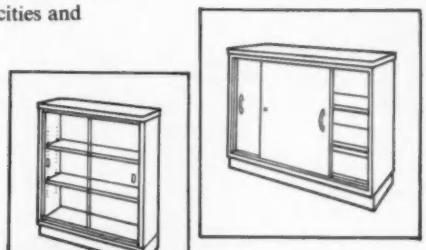

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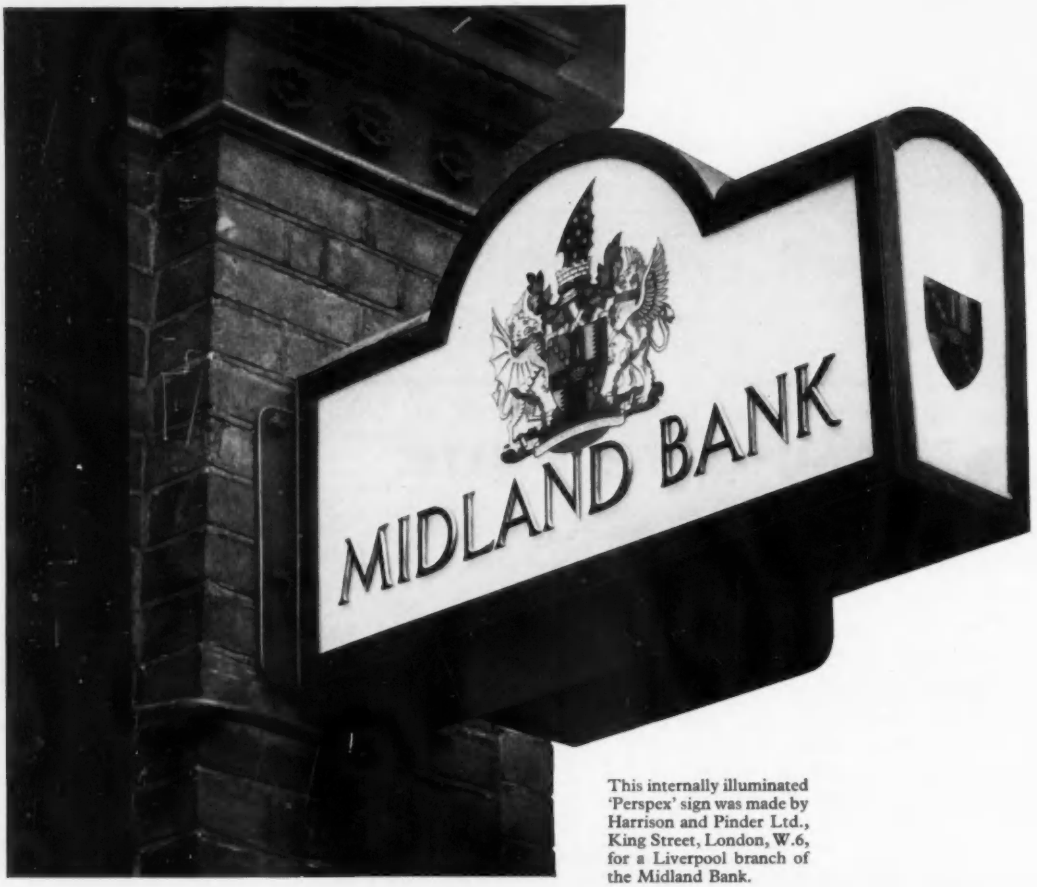

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P.651

Arturo Toscanini (1867-1957) a Tempera painting by Hans Erni

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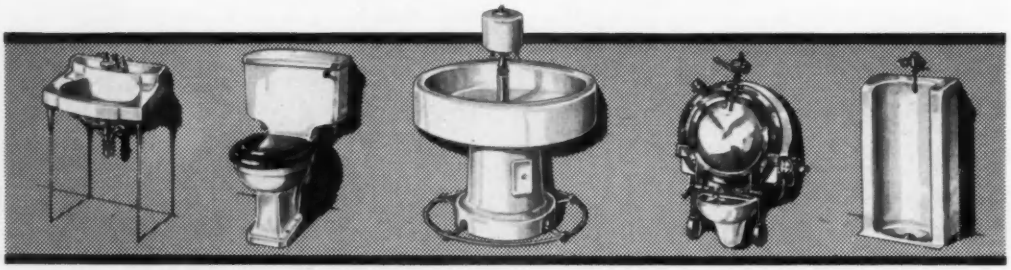

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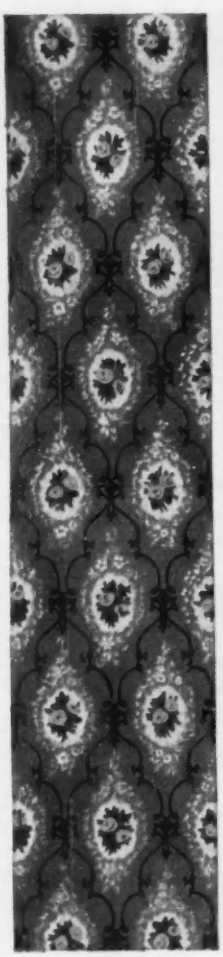

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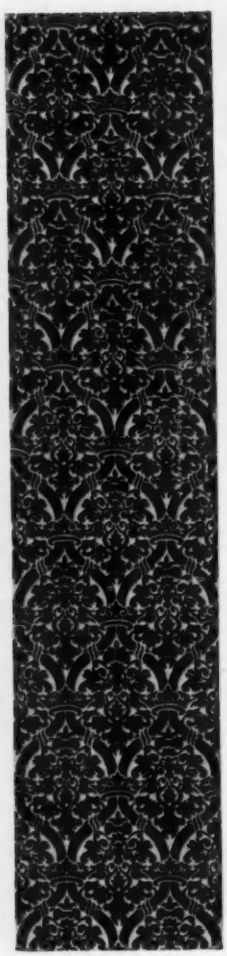

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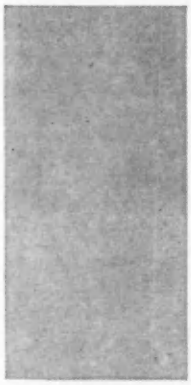

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1. Penthouse mess room for the Engineering and Research Divisions of The Bowater Paper Corporation Limited, Northfleet, Kent, in collaboration with the Architects Farmer & Dark F/F.R.I.B.A. Photograph by courtesy of Messrs. Holland & Hannen & Cubitts Ltd.

2. Departure lounge London Airport, Architect Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.

3. Lunch room for Upjohn of England Ltd., Crawley. Architects Russell Diplock Associates, B.ARCH, A.R.I.B.A, A.M.T.P.I., Architects and Planning Consultants.

4. Part of a range of contract seating designed for durability in public buildings.

5. Conference room for the Engineering Division of The Bowater Paper Corporation Limited, Northfleet, Kent, in collaboration with the Architects Farmer & Dark F/F.R.I.B.A.

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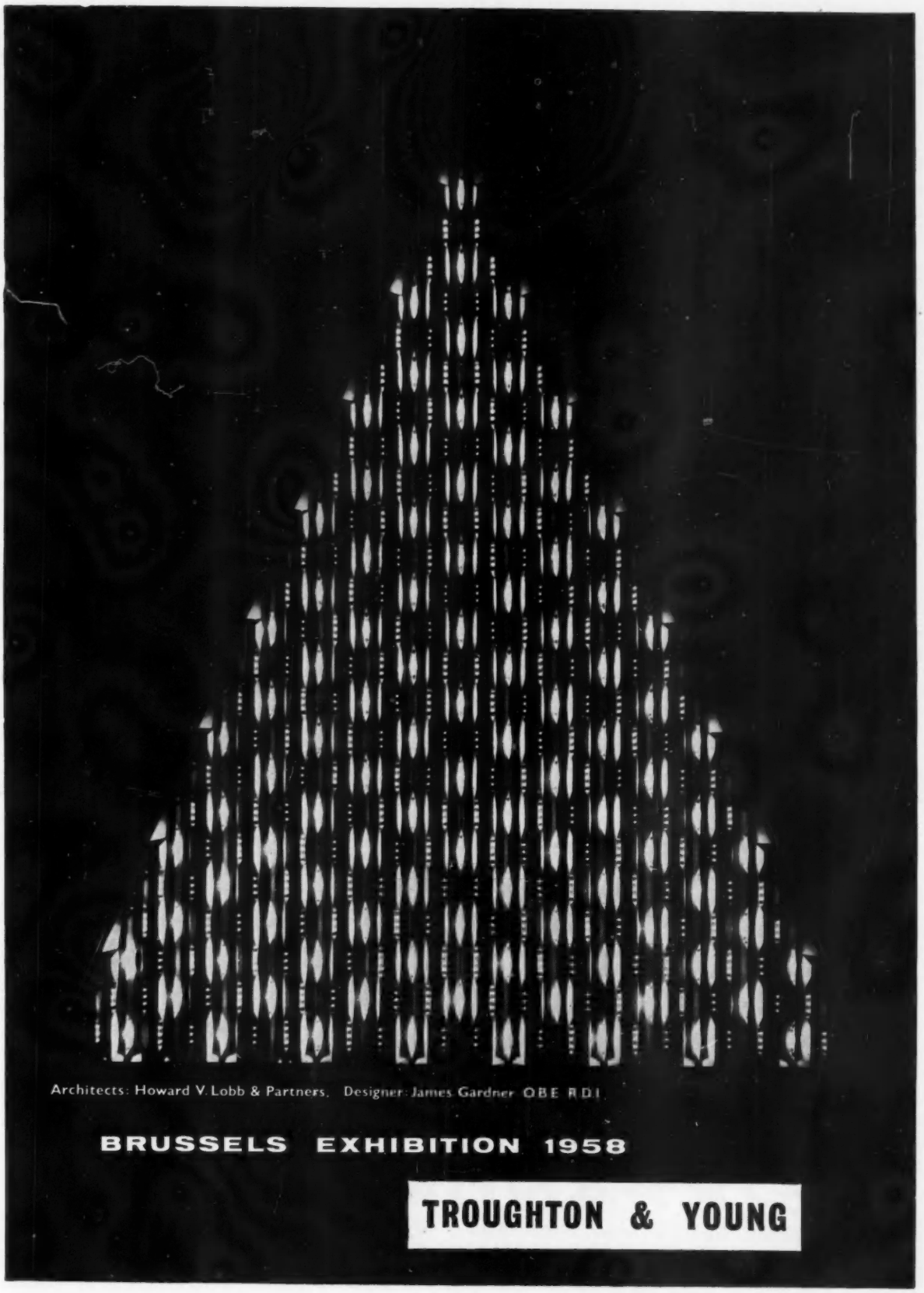
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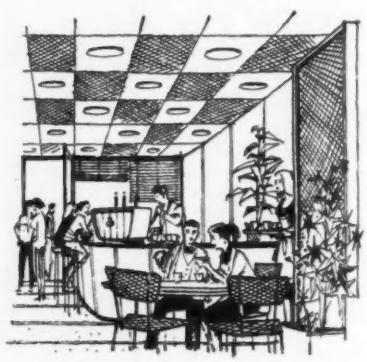

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Expamet

Number 115

July 1958

Design

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RECORD OF DESIGNERS
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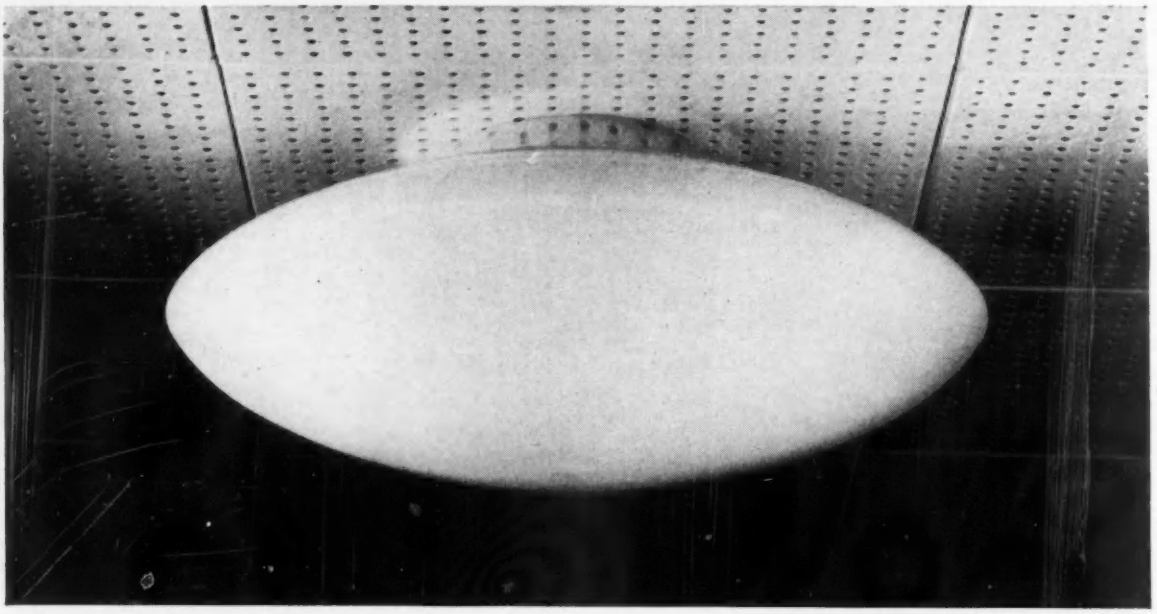

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16-43 PORTLAND ROAD LONDON W.11 TELEPHONE PARK 1221 (5 lines)

Look for the label

AFTER TWO YEARS The Design Centre continues to attract on an average more than 2,000 visitors a day. But the Centre's organisers, the CoID, has long been aware that the Centre's work must reach many more people than this – people who seldom have the opportunity of visiting London.

In the autumn the Council will start a scheme which should eventually enable people all over the country to benefit from the service the Centre has to offer – to identify in their own shops products that are on view in The Design Centre. This scheme, which was originally proposed by the retail trade, will consist of the labelling of the goods which have been shown. The Council hopes that by the time the scheme is working fully it will end the most serious and common complaint from the public – the complaint that it is difficult to find in the shops the articles displayed in the Centre.

Sometimes this has been the fault of the manufacturer, whose production was inadequate to meet the demand; sometimes it is due to an ingrained belief in the sales appeal of ugliness on the part of his staff, so that a better design was but faintly supported; sometimes it has been due to the unwillingness of retailers to show and stock it; and sometimes to the customer's failure to realise that in some towns one has to be a very persistent shopper if one is seeking well designed things. The Council is well aware of the importance of this matter, because better designed things can only appear in larger numbers if they are demonstrably saleable. Yet it has been unable to find out from all manufacturers where and at what price their goods can be purchased; this may sound silly, but it is a fact.

How can the labelling scheme help in all this? Shoppers will soon learn the value of searching until they have found those products bearing The Design Centre label, and they will get into the habit of visiting shops which show labelled products. This intensified demand for products bearing The Design Centre label will constantly remind retailers of the value of stocking well designed goods. If this increased demand is an embarrassment to manufacturers it will be an embarrassment they are eager to overcome – and it will encourage them to plan ahead with more confidence.

This scheme needs the support not only of forward-looking manufacturers and retailers, but also of the general public. It is with confidence that we appeal to our readers, all of whom are shoppers from time to time, to help by publicising this scheme exactly where publicity is most wanted – on the shop floor. G.R.

Pointers

Wish who was where?

"Having a wonderful time: wish you were here". We usually turn the card over, after addressing it, and wonder if it ought to be posted. If we do post it, our nearest and/or dearest will almost certainly suspect a growing feebleness of mind. It is so obvious that no-one could have a wonderful time in the blotchy murk of "famous old high street" – and it is pretty insulting to wish anyone else into such a place. Strong minds have been known to jib at the dreariness of the average postcard, which makes "noted beauty spot" look like a slice of the potteries, and to turn instead to the cheerful vulgarity of "Waiting for the smacks". But now there is good news for those taking a holiday in London, Cambridge, Bath or Gloucester. The Gordon Fraser Gallery has issued a series of architectural cards on each of these cities, thanks to Edward Carter – previously of the RIBA library and UNESCO. The photographs are good (many are by Eric de Maré and Helmut Gernsheim) and the backs of the cards are nicely designed by Sheila Stratton.

My favourites are the superb close-ups of details of the Westminster Abbey monuments. The other London series include Hampstead ("to reveal the social and even sentimental life of the place"), St Pauls and the Royal Festival Hall (a pleasant collection, but one photograph has wrecked the scale of Barbara Hepworth's sculpture on the terrace).

These cards should sell well at sixpence each. Others are promised soon. So telephone Gordon Fraser before you take your holiday, and find out where you can safely wish whoever it is was.

Speculation about speculation

'Design pays' is an accepted slogan in the world of consumer goods, where products are constantly improving as designers and manufacturers get together and work things out between them. Why cannot the designers and manufacturers of houses get together in the same way? That question was asked at the recent symposium on private house design (called *Design Pays*), which was held at the Royal Institute of British Architects, in London. Several speakers made it clear that it was not as easy as all that. There is, of course, a great difference between the designer-manufacturer team and the architect-builder team. The industrial team can do what it likes, provided it pleases the public. The building team has to overcome two censors – the local planning set-up and the building society. The first of these obstacles to good architecture got off too lightly at the RIBA's symposium. The second – the too-conservative building society – was attacked both by builders and architects.

The architect did not get off scot-free in all this. Clifford Culpin, himself an architect, said that his profession was partly to blame for the sad state of most housing. So many architects, he said, refused to soil their hands with speculative housing. Those who did work with builders, he added, should do more than prepare pretty elevations or type designs. They should join with the builder in thinking about the whole house and the planning of building operations.

Another architect, Tom Mellor, believed it was up to the architect to prove that both he and the builder would benefit financially from collaboration. It was essential, he thought, for a "technique of co-operation" to be evolved. Most important of all, building had to be on a large scale.

This is where the analogy between designer-manufacturer and architect-builder really breaks down. The industrial designer is responsible for a single product. The successful housing architect should do more than design a house to be repeated in series: he should be responsible for layout and landscape design. He has a larger job than the industrial designer, and he faces more opposition. But it is a job he must try to do. If he does not make an impression on spec building then – as Eric Lyons said at the symposium – the case for prohibiting it will become irresistible.

A Day you will never see again

The editor of a regular BBC programme, which he describes as "intellectual hoo-hah", recently put on a film about post-war design standards without making it clear if he thought these were good or merely gimmicky. "You mustn't frighten the viewers", he told me: "you must let them judge for themselves. You see, design in the home is such a personal thing".

That man may well keep his viewing figures high. But he is wasting the opportunity of using an intelligent programme to show people the difference between good and bad design. I agree with him that it is not enough simply to televise *good* design. "Put a well designed tea pot on the screen" he says, "and thousands of knobs are switched off." But once you put bad design on the screen as well, and explain why it is bad, you have every chance of keeping your audience. A lot of people must have sat up when Robin Day (the designer – not the television commentator) pointed to a pseudo-contemporary chair in a recent ITV school series, and said: "This is a very bad modern chair, a dreadful design; it has a lot of the weaknesses of modern furniture, and I'm not too happy about its structure either." This was good, lively stuff, and enough to make some irate manufacturer reach for his libel solicitor. But in fact, Mr Day had designed the chair himself, on the lines of the worst clichés to be found in the furniture trade.

A sad little footnote. Since the chair was returned to the firm that made it specially for the programme, a lot of people have said they liked it. So Mr Day has produced a potential best seller that would ruin his reputation if he put it on the market. KENNETH J. ROBINSON

MICHAEL FARR

The following feature – the first in a series of three on the Brussels exhibition – describes the most effectively designed pavilions. The second feature (August) will deal with new designs on view and the third (September) methods of display.

NATIONAL FACES

"WE AIM TO BRING TOGETHER people of every nation and every race, of widely differing cultures and civilisations, and to make them conscious of their common humanity."
Baron Moens de Fernig, commissioner general of the *Brussels Universal and International Exhibition.*

The first part of the aim was achieved with only a handful of important absentees among the 52 countries and international organisations present. The foreign section, as it is called, is densely packed and extends for about 125 acres, approximately a quarter of the complete site. The remaining area is occupied by Belgium and her colonies, individual commercial exhibits, amusement parks and a reconstructed Belgian town of 60 years ago.

Success in the second part of the aim – to achieve the unity of mankind – cannot be

assessed so easily. But its significance was realised by all participating nations, for this was *the* post-war occasion to present themselves to each other in the most attractive manner possible.

Presentation depends on design and so the vast Brussels exhibition is rich with interest. The nations occupy a roughly elliptical, well-wooded, undulating stretch of parkland. The total visual effect of the mass of pavilions and structures just happened: apparently no co-ordinating planner was allowed the last word. Space – almost prohibitively expensive for some countries – was booked and occupied according to the designs of individual architects. Successful harmonies and contrasts between different pavilions were happy accidents; none seemed to be contrived. In the areas controlled by Belgium there was a hint of planning, but apart from the axial layout of roads and buildings left over from the Brussels exhibition of 1935 – an awful warning to those who would like to perpetuate exhibition architecture – the same happy-go-lucky cheek-by-jowl designing is to be seen.

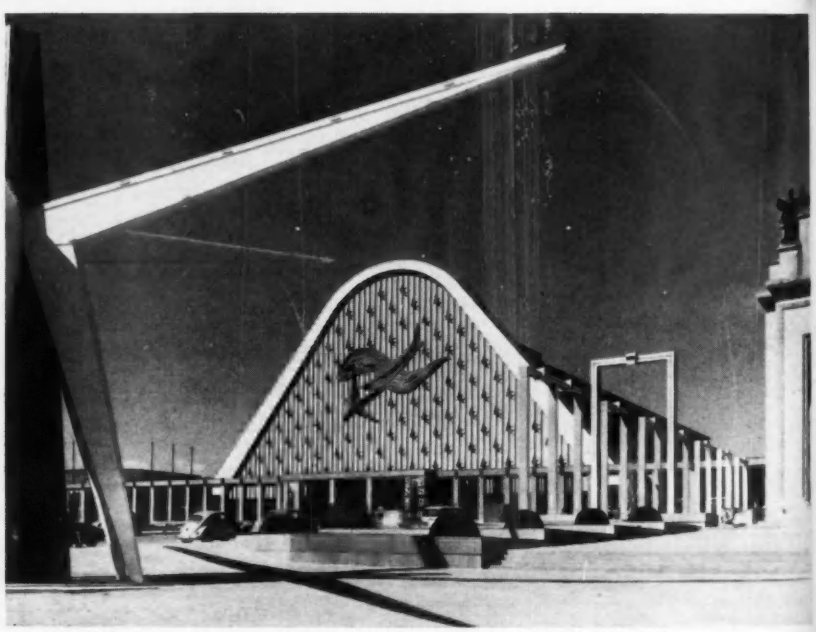
Expressions of world-wide co-operation and unity are to be found within and immediately around the individual pavilions. The general interpretation of this theme was: "Here we are – come in and get to know us". How did the separate nations achieve their common aim? The following photographs – limited to the most effectively designed pavilions – have been selected to illustrate this question.

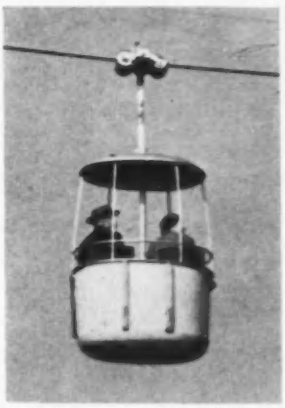
In addition to the Belgian exhibits the following nations have pavilions:

Arab Federation (Iraq-Jordan)
Argentina
Austria
Brazil
Cambodia
Canada
Czechoslovakia
Dominican Republic
Federal Republic of Germany
Finland
France
Holy See
Hungary
Iran
Israel
Italy
Japan
Liechtenstein
Luxembourg
Malta
Mexico
Monaco
Morocco
Netherlands
Nicaragua
Norway
Philippines
Portugal
San Marino
Saudi Arabia
Spain
Sudan
Switzerland
Thailand
Tunisia
Turkey
Union of Soviet Socialist Republics
United Arab Republic (Egypt-Syria)
United Kingdom
United States of America
Venezuela
Yugoslavia

Benelux
Council of Europe
Customs Co-operation Council
European Coal and Steel Community
International Red Cross
Organisation for European Economic Co-operation
United Nations and Specialised Agencies
World Council of Churches

Reception The vast arched reception hall commands the axis of the Belgian section. It is a refaced survival from the Brussels *World Exhibition* of 1935; close by are other collonades and buildings, modernistic in design and built at the same time. Many of the free-standing symbolic displays, erected at all points on the site by the 1958 exhibition organisers, like the star feature on the left, recall the harsh angular flavour of this pre-war style.

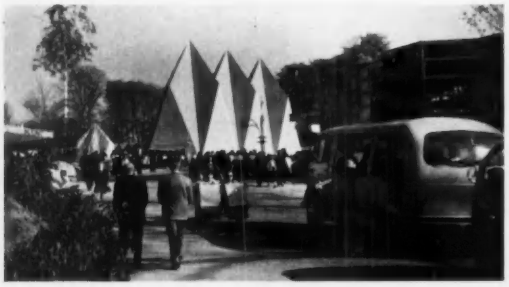




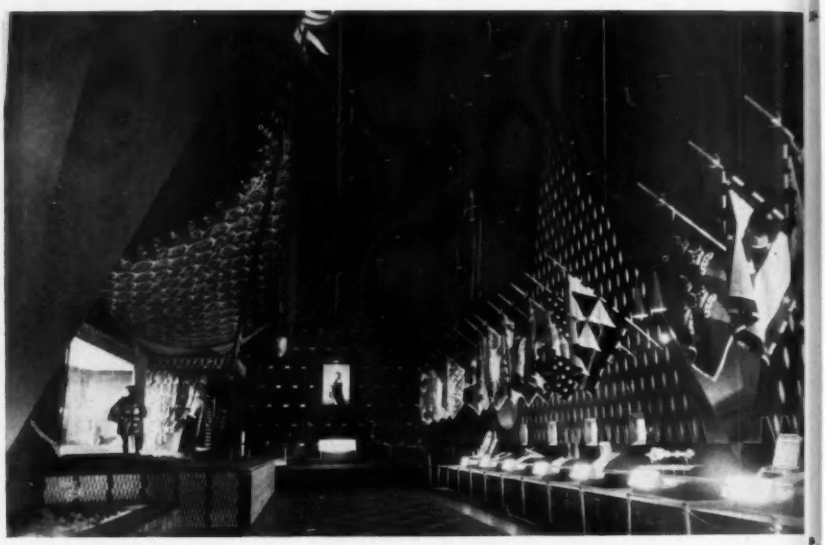
One of the cable cars for viewing large areas of the exhibition

Finland This pavilion is an enigma; like its parent country it is not easy to understand. The stepped formation of the wooden structure does nothing to compel attention; inside the visitor must look hard to be enlightened for the strong scent of pinewood and clutter of conflicting planes can give him little satisfaction. Close to, however, each group resolves itself and there are many photo-murals as good as that shown here. Finnish industrial designs – sparingly displayed – are to be unearthed in the same way. ARCHITECT *Reima Pietilä*. INTERIOR DESIGNER *Tapio Wirkkala*.

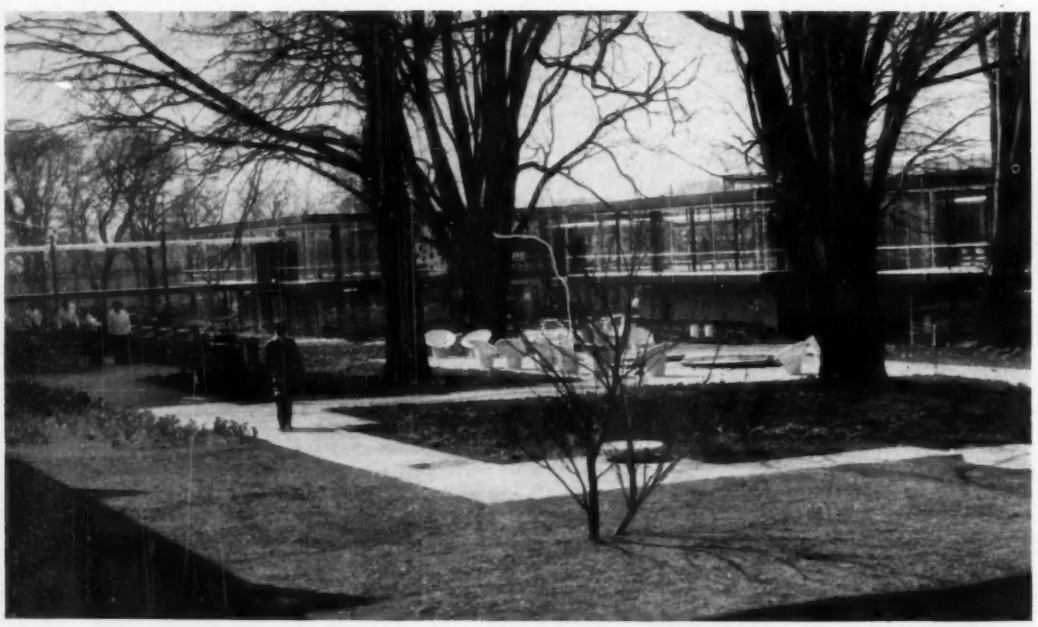
Czechoslovakia The heavy-handed high seriousness of the opening sections – like the UK exhibit – belies the self-assured and cultivated presentation of Czech manufactures that follows. If the visitor can ignore corny sculpture, like that shown ABOVE, and take a hint from the superb curtain wall behind, he can see toys, guitars, fabrics, precision instruments and machine tools that are equal to the best Western standards and laid out with compelling clarity. Sheer size is often used to good effect. The horizontal boring machine, LEFT, in the standard livery of light grey-green, is a typical instance that inspires admiration. ARCHITECT *Professor Kybol*.



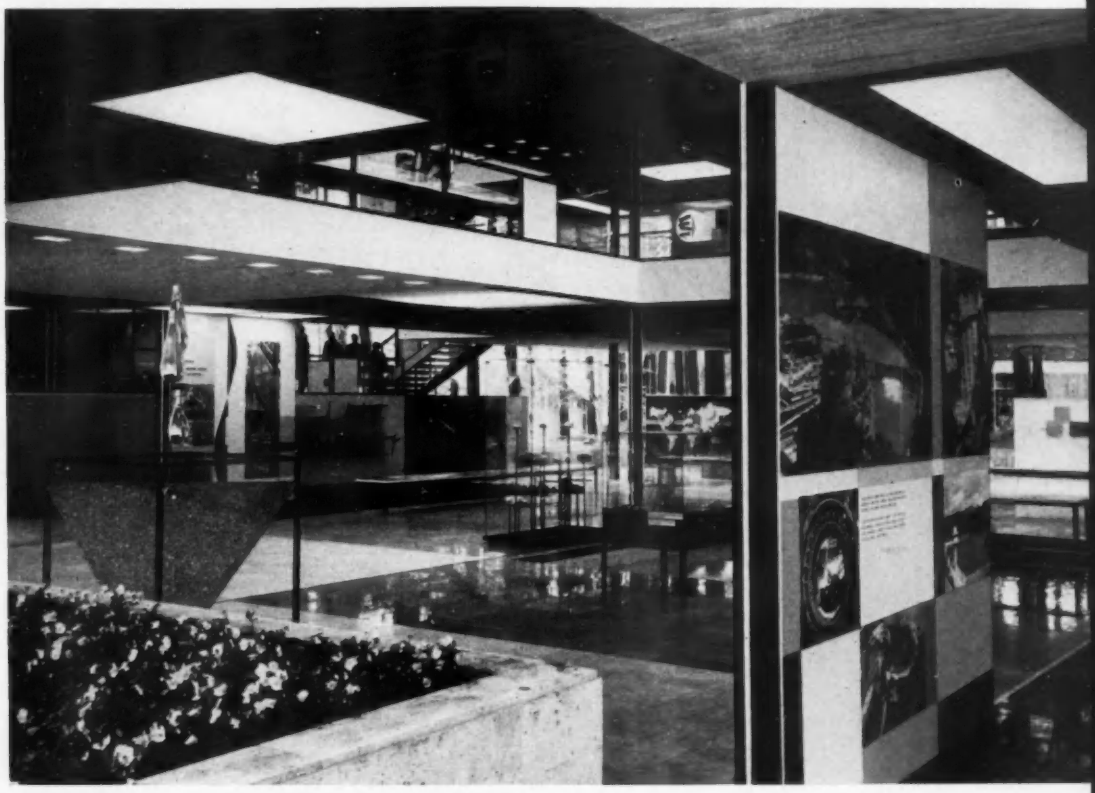
United Kingdom Climbing up the hill the visitor can be intrigued by these truncated spires ABOVE; inside (with his hat off and cigarette stubbed out) he can be awed by the religiose solemnity of the setting, RIGHT: deep purple gloom set to the *Enigma Variations*. Foreign visitors seem either bored or bewildered, but at least traditionalism laid on so thick is unique at Brussels. After this phase the visitor's attention is suddenly plied with startling exhibits of Britain's scientific achievements; a section that does more to satisfy in a small space than any other at Brussels. On the lighter side, in half closed courts, are whimsical displays like the fountain by Laurence Scarfe, ABOVE RIGHT. ARCHITECTS *Howard V. Lobb and John Ratcliff*. DESIGNER *James Gardner*.

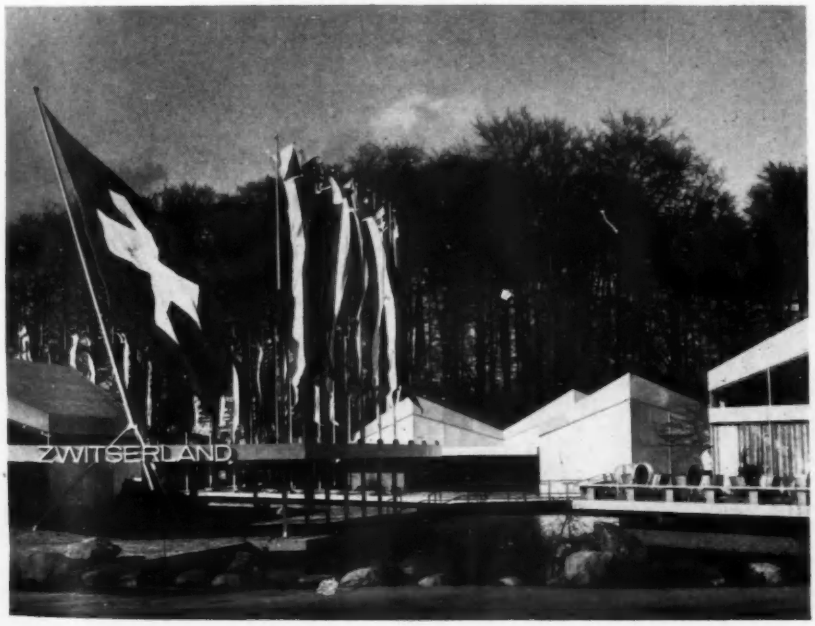


Germany The inter-connected buildings, with their immaculately detailed glass frames and black steel work, contrast with the liberally planted site they enclose. The visitor's leisurely gaze is constantly being brought up sharp to focus on precisely captioned exhibits. The apparent casualness of the spaciously arranged groups conceals a calculated aim to convince the visitor of Germany's prowess in fields as diverse as toys and turbines. This is national pride, generously financed and most subtly designed. ARCHITECTS *Professor Ruf and Egon Eiermann*.

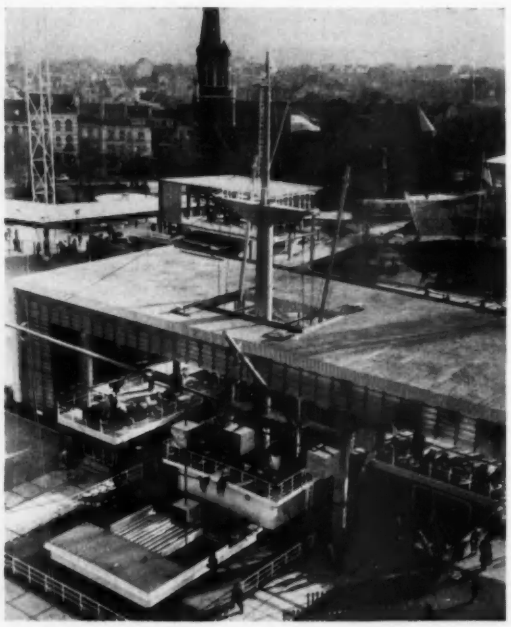


Yugoslavia This is pure propaganda for Communism put over in the nicest possible way. It is spacious and has cleverly articulated walkways round water and planting, with just enough information in photographs and captions to hold the visitor's eye. There is a restful atmosphere, calm and direct; a refreshing contrast to the strident campaigning that makes the Russian pavilion so boring. ARCHITECT *Vjenceslav Rihter*.





Switzerland Characteristically clean in aluminium and white paint, the Swiss pavilion consists of small articulated shelters that ramble round a shallow pool. The structure of these hexagons is cleverly reflected inside by panels of clear colour; each exhibit is spaciously presented as an entity, briefly described in sans-serif types. The Swiss have shown all that they do well, and shown it with a skilful economy of means. The attached restaurant falls naturally into place as a dual-purpose display with, incidentally, one of the best menus in the exhibition. ARCHITECT *Werner Gantenbein*.



USA Circles and segments of circles sweep the visitor's eye around and within this colossal pavilion, ABOVE; it cannot be comprehended fully from any angle. A central lake between trees, ABOVE LEFT, a high-level pavement and bazaar-like exhibits suggest the atmosphere that Victor Gruen and others have attempted to create in American shopping centres. This lighthearted mood is sustained and propaganda has been confidently pushed on one side. The sense of the Americans' special brand of *laisser-faire* is strong; they poke fun at themselves, show good and bad aspects of their city lives, and let the visitor to their sideshow take it or leave. They do not *try* to sell him anything. ARCHITECT *Edward Stone*. INTERIOR DESIGNER *Bernard Rudofsky*.

Netherlands A series of independent structures, like the one shown, make up the Dutch pavilion. More than any other national exhibit these conveyed the atmosphere of the country, its peoples and their activities. Water is extensively used, not as an exhibition designer's prop, but as a live element in the displays, symbolising the Dutch fight to reclaim land from the sea; waves beat upon shingle, a ship is frozen in the act of unloading and a water-ladder splashes in an endless upward spiral. The best of the Dutch exhibit has a weather-beaten look, convincingly unsophisticated. Within the closed buildings some of the displays are confused, but these contrast strongly with the calm, clinical reception room. ARCHITECTS *J. W. C. Boks, J. B. Bakema and G. Th. Rietveld*. INTERIOR DESIGNER *S. Aardewerk*.

ergonomics versus styling in CARS

In 1957, 5,550 people were killed, 63,706 were seriously injured and 204,602 were slightly injured on British roads. How many of these deaths and injuries might have been saved if greater study had been given to the design of driver's controls? The following article discusses some of the problems in car design affecting safety and user convenience.

contributed by

Brian Shackel
engineering psychologist

E. G. M. Wilkes
industrial designer

John E. Blake
deputy editor, DESIGN

THE AMERICAN CONSUMERS UNION report on the 1958 range of cars from Detroit (*Consumer Reports* April) draws attention to the lack of consideration that is given in the design of many new cars to those features which can help to prevent a crash. Mechanical design of such elements as suspension and steering is clearly of fundamental importance to safety, but it is undoubtedly the human element which is the more difficult problem. Fundamentally, the easier a car is to control the less prone will the driver be to make an inaccurate judgment. *Consumer Reports* lists good vision and lack of fatigue as being essential in accident prevention, but goes on to say that " . . . any control switch, knob, dial or lever must be considered a hazard if it is so designed that in using it the driver is distracted or tends to be less sure and quick than he can be". As the performance of cars increases annually the creation of a satisfactory man/machine relationship must be regarded as a priority by designers.

Consideration of safety while the car is travelling along the road will rightly be regarded as the most serious aspect of this problem and several dangerous features in cars which require urgent study are referred to in this article. Other matters, however, may prove to be equally important in the day-to-day use of a car, and will contribute to the owners' satisfaction or otherwise – ease of getting in or out, for example, good access to the engine and so on.

getting in and out

The whole process of opening the door, climbing in, closing the door, and the reverse on climbing out, should be an easy, smoothly flowing series of movements without any undue bends or stretches. In so far as this does not occur, and particularly if any part of the body is cramped, or trapped, or any part of the clothing damaged the designer has failed in his efforts.

1 and **2** Vauxhall *Cresta* The use of the wrap-round windscreen raises here a serious problem for the unwary. It was found that the instinctive action when closing the door was to grasp the top of the door forward of the window. This closes under the base of the projecting windscreen in a scissor action that could break the wrist or fingers. It was found that the handle provided (roughly in the centre of the door) was too far away when the door was fully open to be grasped easily without leaning from the seat. It is extremely doubtful if the reputed advantages of the wrap around window justify this and other shortcomings (see **20**).

3 Citroen *D S19* The door handle on this car is well within reach and is not too near the hinges to require excessive force.

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Close examination of a number of different models suggests that manufacturers at home and abroad allow various considerations to take precedence over the attainment of an optimum man/machine relationship. In particular the efforts of the stylist seem often to conflict with the fundamental requirements of the user. The desire, for example, to create an appearance of unity on a facia panel often outweighs the necessity for easily read dials and conveniently placed controls. Alan Brinton, reviewing the Standard *Pennant* recently in the *News Chronicle* complained that after a long night's drive he was still confused by the lighting controls. The exaggerated emphasis on styling, characteristic of the American motor industry, has led in certain instances to an almost total obscurity of the user's convenience.

In an industry which spends more on design than any other this comparative lack of attention to an obvious need is difficult to understand. The more so, perhaps, since the study of user convenience should always be a fundamental aspect of the industrial designer's work. 'Easy to use' has long been a key slogan of the design profession and has been given as much prominence as others, such as 'easy to make', 'easy to clean', 'good to look at' and so on – which have served to sum up the broad, co-ordinating nature of the design process. Today, however, the situation is complicated by a new

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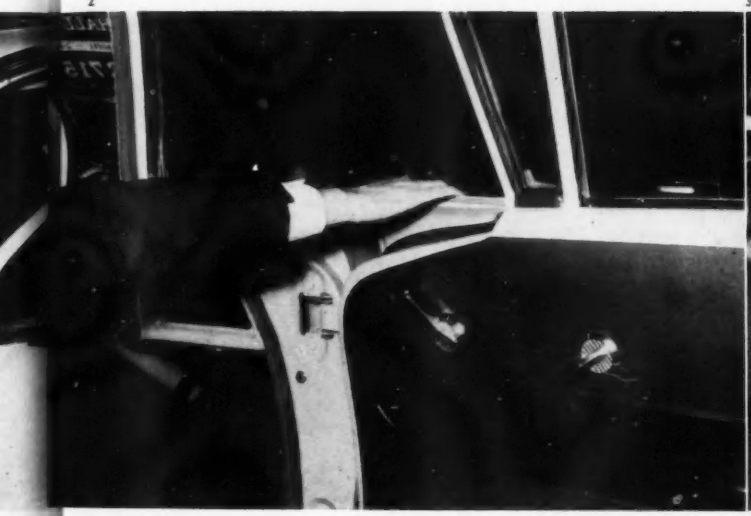

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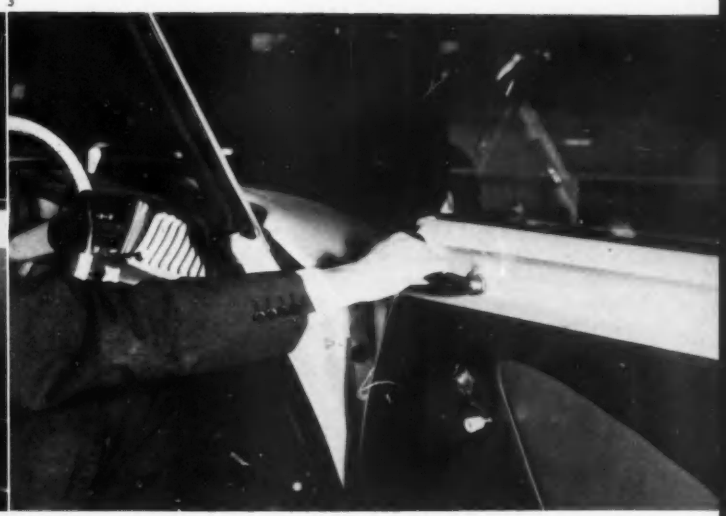

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4 Fiat 600 Although this was one of the smallest cars tried it was one of the easiest to get in and out of. This was not only due to the large size of the door, but also to the fact that it was rear hinged (this could, however, be a disadvantage if the door should come unfastened and fly open when the car is travelling at speed). In view of the fact that it is such a small car the designers have achieved a particularly good solution to the related problems of seat height, steering column rake, steering wheel diameter and distance of pedals from the steering wheel.

5 *Jamus* Having entered and sat down in this new miniature car it was necessary to half rise and lean far out to grasp the door handle in order to close the door. This half rising and stretching increases the danger of knocking one's head on the top rail.

6 *Isetta* A much better solution can be found in the *Isetta* which has a hinged steering column fixed to the door. The steering wheel is used to pull the door shut involving little body movement.

7 Standard *Pennant* It is surprising still to find projections on the door frames of modern cars. As the photograph shows, the coat pocket of one of the contributors was caught on several occasions on the projecting door catch, while getting out of the car.

starting off

Again, the process of starting the engine and getting the car into motion should be a reasonably simple, integrated series of movements. In so far as any fumbling, awkward movements, or changing hands, is involved, the design is sub-optimum. Particularly, two definite routines can be detected: first, choke/ignition/starter; second, gear lever/hand brake/steering wheel.

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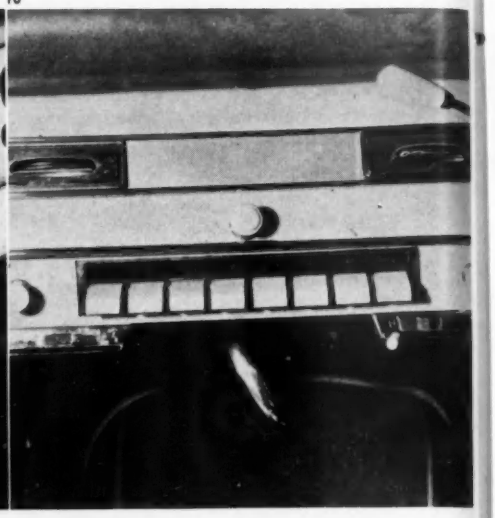

Choke/ignition/starter This is a sequence of operations which occurs every time the car is started. The obvious solution is to integrate the starter switch with the ignition switch as one action. However, where this improvement has not been made the ideal layout is to place the three controls in the order in which they are operated, with the one operated last nearest the gear lever, which will be operated next. Little or no use has been made of differences in shape and feel which might help towards rapid identification.

8 Standard *Pennant* Here we have five small knobs with very small letters, spaced equally. The letters are too small to be seen readily at a quick glance; the only way the driver can pick the correct knob is to count from one end or the other.

9 Austin *A55* The four knobs, symmetrically placed on either side of the ignition switch, are not located in a rational manner. If the choke knob, far left, and wiper knob, second from right, are interchanged, we then have a definite sequence, starting from the ignition key in the centre and moving to the right, through the choke to the starter. If, as is possible, the designer put the wiper knob in the right hand group to be nearer the driver, because it is the one control often used while driving, then logically it should be closest to the driver with the panel lamps next to it. At least there is no doubt about visual identification of these knobs. But why must they be identical to the touch ?

10 Borgward *Isabella* Here we see the symmetrical layout *par excellence*, with eight white identical push buttons. The decorative symbols, from the driver's eye level, are by no means easily seen. Selection by touch alone is impossible without counting from either left or right; visual identification is possible by taking the eyes off the road once the code has been learnt.

Gear lever/hand brake/steering wheel This is a more vital sequence and may, or may not, require integration of clutch pedal control. When starting from rest, the gear lever is moved to first gear and the hand brake is released. One hand should already be on the steering wheel; the other should be able to come to it as soon as the hand brake has been released. Could the industry not agree to a standard arrangement for gear lever and hand brake with both on the same side of the steering column ?

11 Fiat 600 The gear lever is well placed and comes easily to hand; the hand brake is possibly a little further to the rear than ideal, but both are placed where the left arm and hand naturally fall to them.

12 Vauxhall *Cresta* The hand brake is awkwardly placed under the facia; it has to be pulled across from right to left rather than directly towards the driver making the operation difficult. In addition it is so placed that, when the car is in first gear, the left forearm, in releasing the hand brake, moves against the gear lever and tends to push it out of gear.

13 Standard *Vanguard* The placing of the hand brake and gear lever on opposite sides of the steering wheel means that when starting off either the hands on the wheel must be changed, or the wheel must be left momentarily untended as the brake is released.

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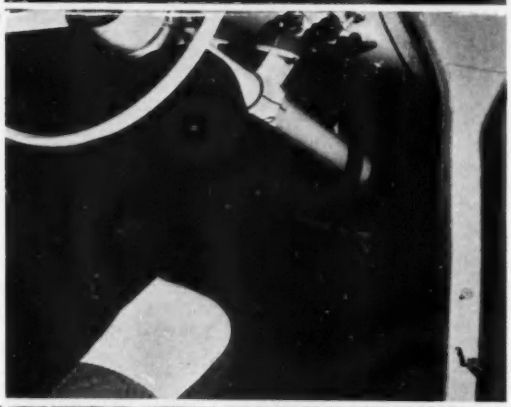

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Photographs by John Garner

foot controls

The growth of traffic on modern roads and the poor condition of the roads themselves contribute much to one of the major causes of accidents – fatigue. Frank Cousins, General Secretary of the Transport and General Workers Union, in a recent issue of Highway Times, *the journal of the Roads Campaign Council, wrote "The question of this nervous tension affecting a driver's health does not appear to be sufficiently appreciated – and it is a matter that cannot be too strongly stressed". Because of these external influences it is increasingly important to reduce those elements in the control of a vehicle that contribute to fatigue or mental stress. The smooth transition from one movement to another is particularly relevant in foot controls which are constantly in use while driving, and more especially the transition from the accelerator to the brake.*

Any significant difference in height of the two pedals should be in favour of the move from accelerator to brake. Thus the height of the brake pedal, not depressed, should be a little lower than the height of the accelerator pedal, not depressed. Transition from the average depression of the accelerator to the brake would therefore involve the minimum movement of the foot. The examples shown here demonstrate some of the common faults in this and other aspects of foot pedal arrangements.

14 Ford *Popular* Not only is the accelerator several inches below the level of the brake, it is also so close that the welt of the shoe could catch on the underside of the brake pedal causing serious delay in braking.

15 Ford *Consul* The fault in the *Popular* could be excused on account of the pre-war origin of the design. There can be little excuse, however, for repeating the fault in the modern *Consul*. Here the necessity to lift the foot on to the brake pedal is aggravated by the fact that, in doing so, the thigh of an average to tall person jams against the underside of the steering wheel.

16 Citroen *D S19* The fault here is that the gap between the clutch pedal and the rear of the engine, which projects into the driving compartment, is too narrow to allow the foot to rest in comfort. This also tends to cause the shoe to become trapped under the pedal with the consequent danger of delay in operation and of distraction of the driver's attention.

12

13

vision

Of all aspects of the man/car relationship good visibility in driving must be regarded as the most important. In some modern cars much has been done by increasing window area and by ensuring that the extremities of the car are fully visible from the driver's seat. The introduction of the wrap-round windscreen, first in America and now in Britain, has been claimed by manufacturers as a big step forward in this progress towards panoramic vision. The four photographs here show, however, that these claims, in the form in which they have been carried out, are largely invalid. Clearly, if the object of a wrap-round windscreen is to remove the blind spot of the right hand windscreen pillar and increase the angle of vision between the two pillars, then the pillars should be moved back so that the driver is sitting within the arc of the windscreen. In the Vauxhall Cresta *this is far from being the case. Although the windscreen pillars are at a different angle from normal they occupy roughly the same position relative to the driver as in the other cars shown. The curved glass windscreen itself extends a*

17 18

CARS

element. The success of the designer, by his normal intuitive or trial and error methods, in solving some of the simpler problems of fitting machines to men is being questioned by the engineering psychologist, or his close relation – the specialist in ergonomics.

The psychologist claims that the intuitive methods are no longer satisfactory, since they have no statistical basis, and that user convenience can in many cases be established by scientific experiment. The dimensions of a seat, the arrangement of controls, the form of an instrument dial, must suit not one or two people, but the greatest possible majority, and this can only be established by controlled sample tests. The information that results should be regarded by the designer as the starting point and guiding influence on his work.

Naturally the designer has tended to be suspicious of this apparent intrusion into his domain, with the prospect of science becoming a substitute for his art. Likewise the psychologist has considered it only natural that his scientifically proved data should be accepted by the designer without question. With this difference of approach in mind, DESIGN invited E. G. M. Wilkes, an industrial designer with many years experience in the motor industry, and Brian Shackel, psychologist working in the electronics industry, to examine a number of British and foreign cars and to discuss from the user's point of view some of their good and bad features. DESIGN considered that with such differing backgrounds violently opposing opinions would result. In almost all cases, however, the views of scientist and designer concerning individual features of the cars examined were found to be unanimous, and the commentary on the illustrations to this article therefore represents a summary of their joint opinions.

Designing versus styling

The majority of their criticisms concern faults which an ordinary commonsense attitude to design would not have allowed. Here the argument turns away from that of scientist versus designer and becomes one of scientist and designer versus the industry – and in particular versus the stylist. Clearly the conception of the industrial designer, in the sense outlined above, differs considerably from that of the stylist who is concerned primarily with appearance. The specialisation within the industry – the separation of styling and engineering departments with only formal links between them, can here be seen as one of the stumbling blocks to a more satisfactory marriage of man and machine. The engineer will protest that the styling department has given him an impossible task to fit this into that; the stylists complain that the engineering designers have already

considerable distance forward of these pillars and is little more effective than if a flat windscreen had been used.

17 Ford *Popular* This car has a flat windscreen. The field of vision is poor owing to the narrowness of the car and the thickness of the pillars.

18 Ford *Anglia* This car has a slightly curved windscreen. In spite of the thick pillars the field of vision is better than the *Popular* owing to the fact that the car is wider.

19 Citroen *D S19* The deeply curved windscreen contributes little if anything to the excellent visibility which is due here to the extreme slimness of the pillars.

20 Vauxhall *Cresta* The complete wrap-round windscreen must be regarded as a styling gimmick which, for the reasons stated, contributes little to better visibility. The field of vision is better than in the two Fords shown here simply because the car is much wider. The backward sloping pillar, which is much thicker than that on the Citroen, may allow a slight increase in visibility at the lower corners, but the problems involved in designing the door (see **1** and **2**) would seem to outweigh this slight advantage.

19

20

fixed the positions of pedals and controls and the result is the best of a bad job. The sense of a close knit team of engineers and designers working together at all stages of the design seemed lacking in the majority of models reviewed on these pages.

Specialisation is nowhere carried further than in the USA where the stylist appears to be lord and master. *Time* quotes one American stylist as saying, in a discussion on the trend towards even lower cars, "... we're not going to get the public to crawl into a car and lie on their bellies to drive it", which suggests that the idea had been seriously considered but was somewhat reluctantly rejected. At a time when the American public appears to be growing tired of the apparently endless extravagancies of the Detroit stylist, and to favour the more practical and economical European car, British firms could well seize the opportunity to demonstrate the even more practical advantages of a car developed from a thorough investigation of the user's safety and convenience.

Smooth sequence of movements

It is perhaps significant that the Americans themselves are becoming increasingly conscious of this aspect of vehicle design and a quantity of fundamental work has been carried out in recent years. One of the latest examples is the Cornell Liberty safety car, illustrated and discussed on pages 56 and 57, which introduces a number of unusual features to improve safety and driver control.

Describing the basis of his comments on the individual cars illustrated Mr Shackel writes: "The whole business of driving a car is a high grade sensori-motor skill, which takes a considerable time to learn, and which almost certainly shows the same characteristics as other types of skill which have been studied more thoroughly – such as piloting an aircraft. The behaviour which significantly characterises human skill is the sequence of smoothly co-ordinated movements, well adapted to the demands of the situation. Breakdown in skill is shown by longer delays before the necessary action is taken in response to external signals, and by the movements themselves becoming more jerky and less co-ordinated. The car should be designed to facilitate these smooth, well co-ordinated movements as the driver changes from one aspect of his task to another."

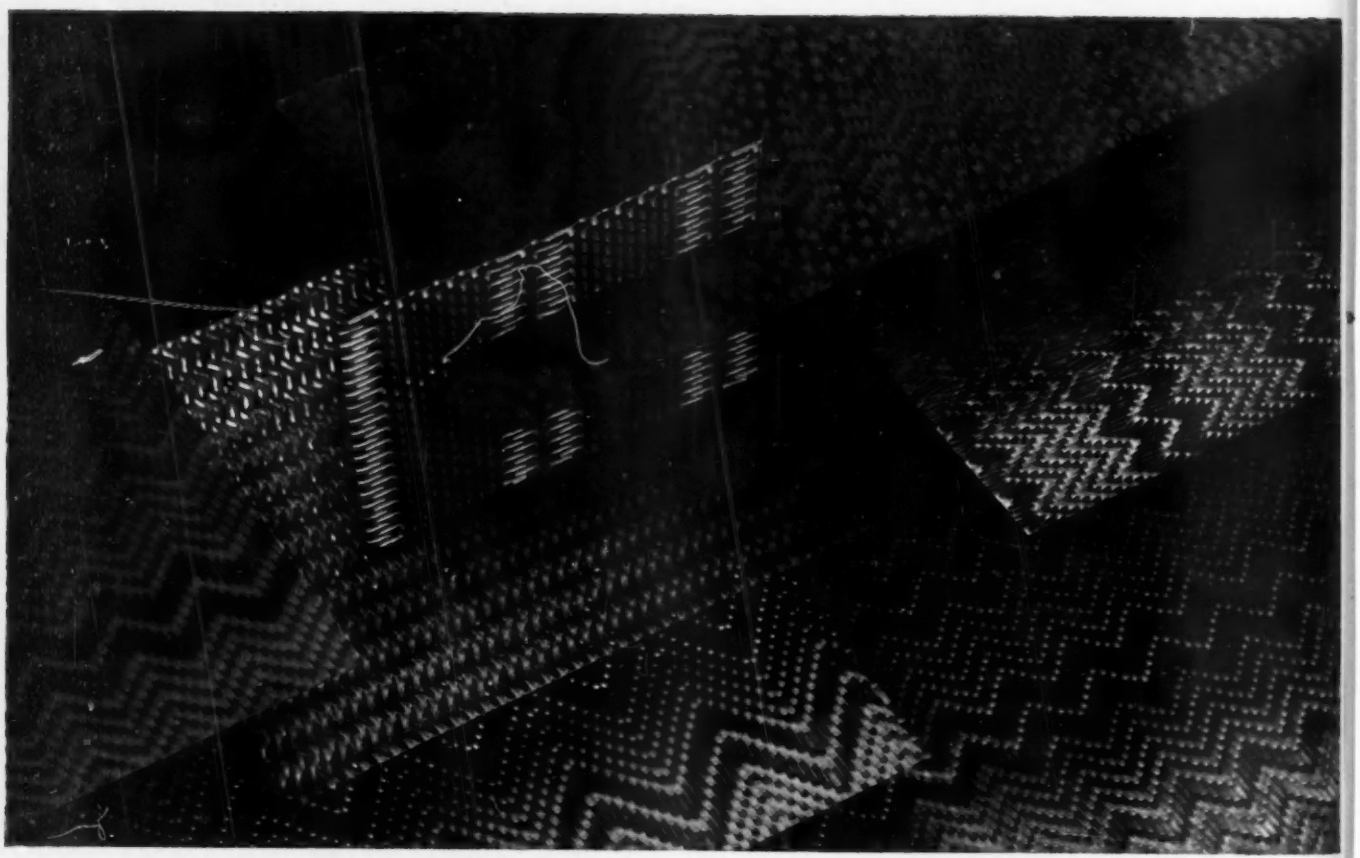
Some of the more obvious points affecting the sequence of movements required in getting in, starting the engine, moving off and driving along the road are discussed in the captions to the accompanying pictures, taken at last year's *Motor Show* in London.

A paper on *Research on Human Factors in Road Transport* was recently delivered before the Ergonomic Research Society, by G. Grime of the Road Research Laboratory, Department of Scientific and Industrial Research. The paper, published in *Ergonomics* No 2, the journal of the society, urges the need for research on some of the problems affecting safety which are discussed in this article.

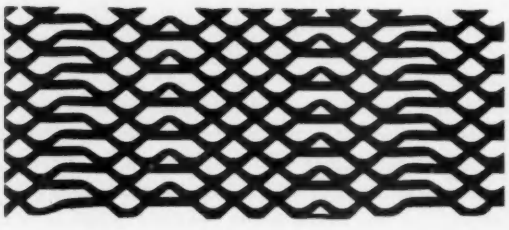
Patterns of expansion

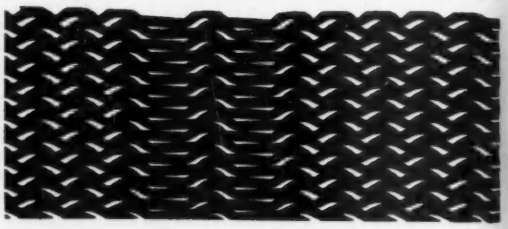
L. BRUCE ARCHER

New applications are constantly being found for Expamet, the product of The Expanded Metal Company Ltd. The firm meets these demands by introducing an ever widening variety of meshes and patterns.



ABOVE A selection of the many colours and patterns available in the Expamet range. BELOW Three of the meshes, shown actual size.





EXPANDED METAL was devised during those vintage years towards the end of the nineteenth century when the telephone, the typewriter, the sewing machine, the automobile and the skyscraper were also being introduced. Like all these things it found its first successful development in the USA where it was introduced in 1884 as a basis for plaster work in the building trade. Later its use was extended to include the reinforcement of concrete. The great fire of Chicago in 1871 had provided the impetus for devising a substitute for wood lathing which would have better fire resisting qualities when used for plaster work. The great San Francisco earthquake of 1906 demonstrated in the most dramatic way the survival capacity of concrete constructions reinforced with expanded metal. The use of expanded metal for both purposes spread rapidly throughout the world. In this country, and later in other countries, particularly in Europe, companies were formed to manufacture the material.

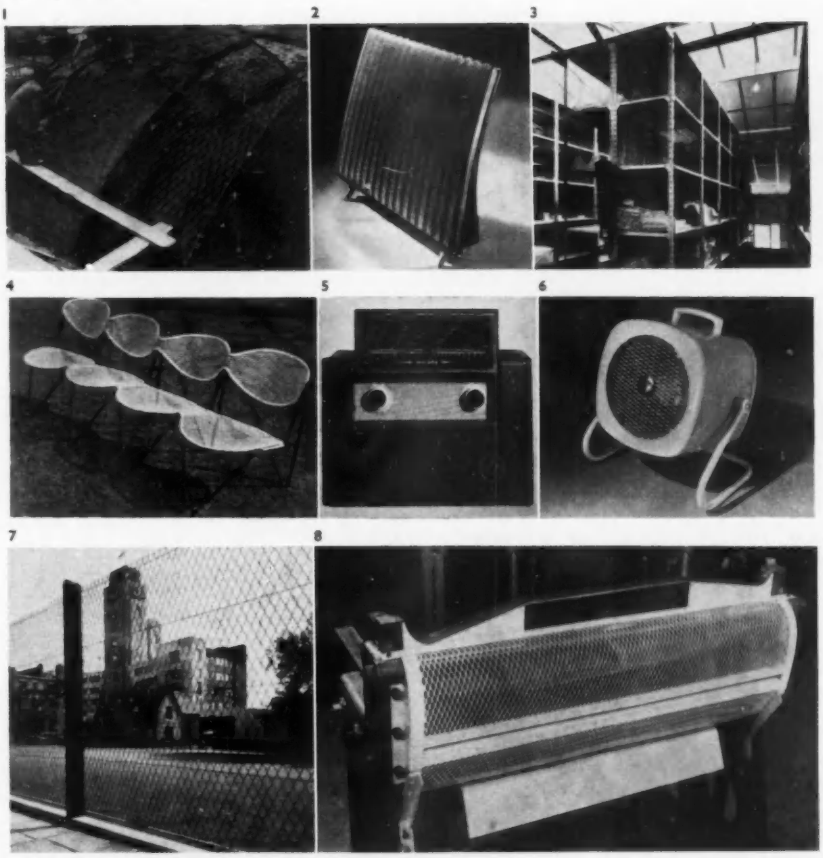
The principal consumers of expanded metal have always been the building and civil engineering trades, but from the earliest days an interest in the material has developed in other industries. Even prior to the 1914–1918 war, The Expanded Metal Company's catalogues were showing fencing, tree guards, gates, partitions, garden trellis, machinery guards, waste paper baskets, lockers, riddles and fire guards. Stimulated by these developments, the manufacturing technique was extended to include the processing of most sheet materials including paper and, later on, plastics. In achieving smaller and smaller mesh sizes, The Expanded Metal Company has produced materials with the almost unbelieveable rating of 3,800 apertures to the square inch.

Shortly after the second World War, with the relaxation of restrictions on raw materials, the company began to take an increasing interest in applications where expanded metal would be seen by, and become more generally known to, the public at large. The introduction of new attractive and durable colours produced on aluminium by the anodising process came at a moment when there was a strong public demand for cheerful products to make up for war time shortages and drabness. In 1952 flattened expanded metal became available, and now a unique range of pattern meshes is being introduced. The British company is said to be the only one in the world which has found out how to create patterns as an integral part of expanded metal meshwork.

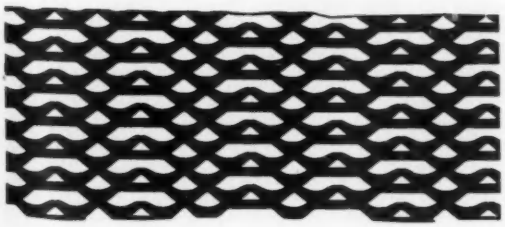
The response to these developments and to the well conducted publicity which has accompanied them has been immediate. Demands from a wide variety of industries for all kinds of special meshes have stimulated fresh discoveries within the company. In addition to the self evident applications, such as radio loudspeaker frets, outdoor furniture, and waste paper baskets as well as the ever faithful plaster and concrete reinforcements, expanded metal is being used for such unlikely purposes as plates in miniature valves and batteries, filter screens, and tissue reinforcements inserted in the human body by surgery.

The material and its trade name Expamet has become almost as well known as, say, Perspex or Formica. This is a considerable achievement for a relatively small company, which can nevertheless justly claim to be manufacturing the most varied types of expanded metal in the world.

Some applications



1 Expanded steel for the RC shell roof of the Scribban-Kemp biscuit factory at Grimsby. ARCHITECT *William Saunders and Partners.*
2 Expanded aluminium for an electrostatic loudspeaker. DESIGNER *P. J. Walker.* MAKER *The Acoustical Manufacturing Co Ltd.*
3 Expanded steel for storage racks at the Medical Research Council stores, Colindale.
4 Expanded steel for garden furniture. DESIGNER *Nigel Walters.* MAKER *Andrew A. Pegram Ltd.*
5 Expanded aluminium for a speaker fret. DESIGNER *A. F. Thwaites.* MAKER *Murphy Radio Ltd.*
6 Expanded aluminium grill for a fan heater. DESIGNER *Robert Cantor.* MAKER *New Day Electric Ltd.*
7 Expanded steel for fencing round a children's playground.
8 Safety guard for a sheet metal guillotine. MAKER *Bush Radio Ltd.*



Ernest Marples, *the Postmaster-General*

GPO TELEPHONE

JOHN GRAY

First supplies of the new GPO telephone, recently announced by the Postmaster-General, are expected next spring. The form of the instrument, based on the new export model designed by Ericsson Telephones Ltd, has been developed as a result of consultations and advice on appearance from the CoID. This is the first desk model the GPO has introduced since the war and it will eventually become standard throughout the country. Its introduction is part of an extensive programme of modernisation for the Post Office, referred to by the Postmaster-General in a recent talk to the Design and Industries Association (DESIGN *June page* 67).

THE INTRODUCTION of a new GPO desk telephone is timely since the older models, though advanced in their day, have fallen out of step with post-war trends in appearance (see pages 58–9). Makers overseas have been experimenting with new ideas and British firms that are interested in export markets have recently brought out special models with Commonwealth and foreign requirements in view (one of them was reviewed in DESIGN for November 1957 pages 24–6). In developing the new instrument, the GPO paid close attention to the requirements of these overseas markets as there are obvious economies in producing instruments for use both at home and abroad. Several Commonwealth administrations, in fact, adopt designs approved by the GPO.

Since the GPO introduced its first all moulded telephone (based on the *Neophone* made by Siemens Brothers, Ltd in 1929), nearly all external components have been made of plastics and their design has been based on moulding techniques. Both this early model, **1**, and the current model, **2**, which has gradually replaced it, are compression-moulded from thermo-setting materials, the best available at the time; they are hard and resistant to scratches, heat and grease, but are rather brittle. They are not, however, suitable for all conditions today. In North America, for instance, the habit has grown of carrying telephones from room to room and, in recent years, designs in injection-moulded thermoplastics have been preferred because they are light, tough and virtually unbreakable, and can be made in a wide range of colours. But they are more easily scratched and marked by grease, and some cannot be given a high polish, so that in countries where these faults matter, mouldings in thermo-setting plastics have remained in demand.

The acrylic material chosen for the new GPO model is a thermoplastics which in an earlier form was used in coloured telephones before the war. The choice of the material – whether thermoplastics or thermo-setting plastics – does not fundamentally affect the design of the instrument, but thermoplastics cases can be thinner

1

2

4 The new standard GPO telephone, which will be available to subscribers next spring.

1 The first moulded telephone introduced by the GPO and based on the Siemens *Neophone*, was a landmark both technically and aesthetically. The handset, which was designed to allow a firm grip round the triangular section, and to leave sufficient space for the fingers between handle and cheek, has remained almost unchanged for 30 years. The case, however, did not prove entirely satisfactory, since the protruding cradle horns were apt to be brittle, and the bell set had to be mounted separately or fixed to the base.

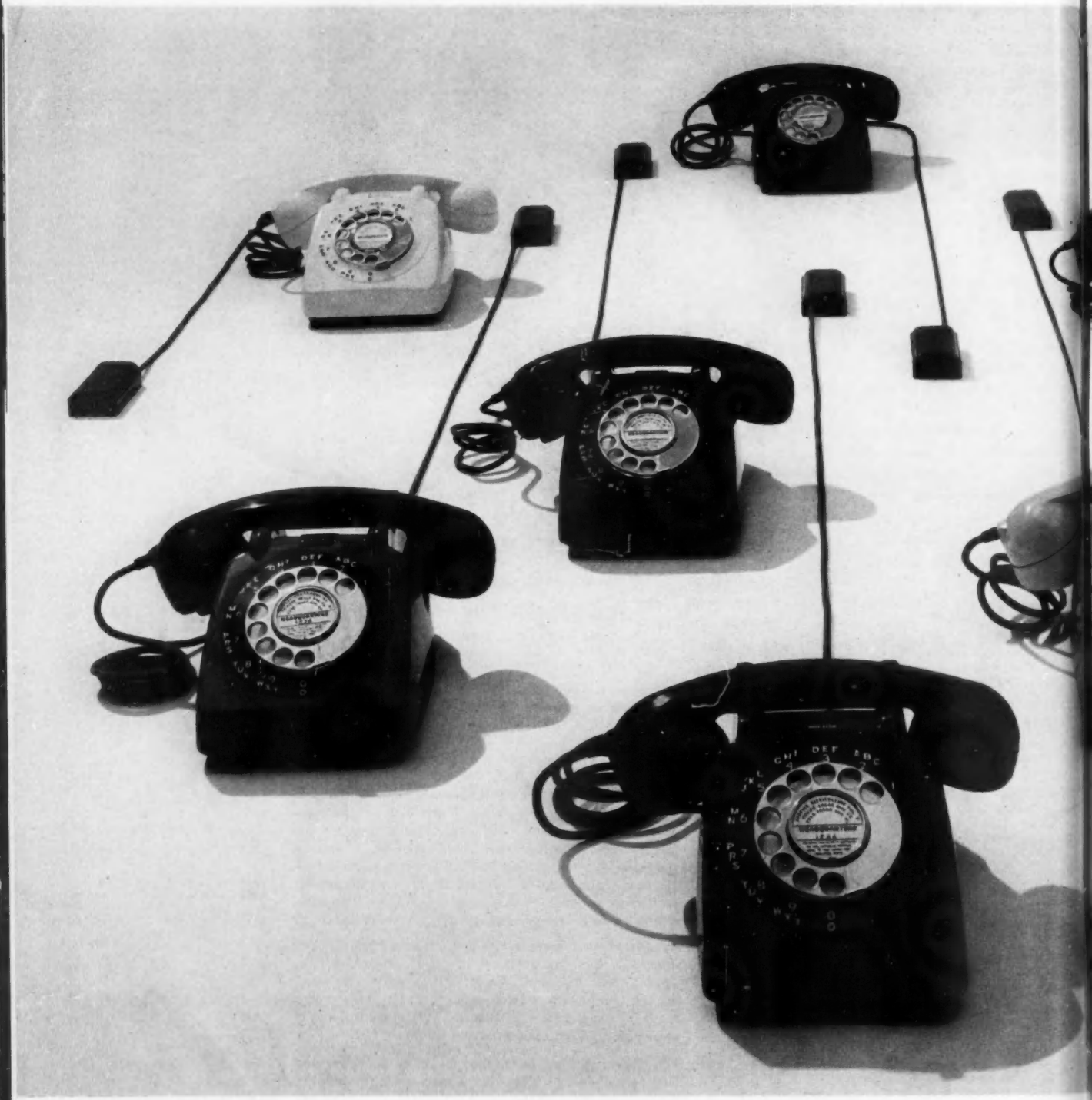
2 In the mid 'thirties, the Duke of Windsor, then Prince of Wales, introduced to this country a new model by the Swedish firm, L. M. Ericsson. The case of the 'cheesedish', as it is often called, was eventually modified and combined with the *Neophone*-type handset in the current GPO standard model, which gradually superseded the earlier instruments.

3 One stage in the development of the new design. The ridge round the base which would have added strength had it been made in thermo-setting material, was eventually omitted.

GPO telephone

5 The complete colour range of the new telephone, designed by Ericsson Telephones Ltd, is shown in this illustration of the pre-production mock-ups. New terminal boxes are to be produced for the Post Office which will replace the current design, illustrated in this photograph. The dial shown is an experimental model, and the design of this feature has yet to be finalised. The telephones are injection moulded from a thermoplastics material.

5



and lighter, and are therefore more convenient to handle. The shape of the new model is equally suited to manufacture in both materials.

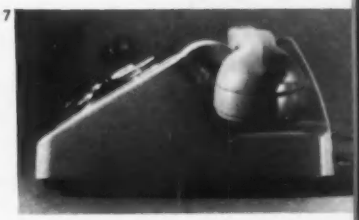
The telephone will be made in a range of colours that are fast to light; it is of much more advanced design than earlier models, and at the same time clichés have been avoided so that it may remain acceptable for many years. The finger plate, which is not shown here in its final version, is set in a hole in the case and the numbers and letters are printed on a ring surrounding it. This follows a recent practice in the USA and elsewhere. It simplifies dialling, especially in poor light, since letters and numbers are more easily visible and a number can always be checked after the finger has been inserted to dial. It also enables the dial to be set at 30° from the horizontal, instead of the usual 45°, enabling the case to be lowered to less than four and a half inches and the profile to be much improved.

Handset and chassis

The handset of this model, **8**, has been designed for ease of production; the setting of the earpiece and mouthpiece, and the distance between them, have been reached after careful research, and new acoustic standards and components have been incorporated. The designers have further developed the rectangular shape of handle now becoming popular abroad; moulded in one piece, it is comfortable to hold because its corners lie snugly in the joints of the fingers. The handset is also designed to fit the cradle horns of existing GPO cases, as well as the new case. These horns do not need to be tall to hold a handle of this shape securely and are in fact smaller and neater than those in many overseas designs. The hollow handle is given as large a core as possible for the sake of lightness and the transmitter and receiver insets are very simply held in position by means of their respective caps, which have coarse-pitch moulded threads. Metal inserts, which in older models locate the transmitter and receiver in position, have been eliminated.

There will be two interchangeable designs of chassis, one using conventional wiring, with a base plate of plastics instead of pressed steel, and the other using a printed circuit. The dial and the spring-sets are mounted on a large bracket secured to the chassis instead of the case, which, thus relieved of all operational stress, is fixed to the bracket by two small screws. Accessory features include a single press button for use on shared service lines and private branch exchanges, and a circular cord of grey braided nylon – chosen to go with any colour of telephone in the new range.

It is not within the scope of this article to deal with the considerable technical improvements which will be achieved with the new telephone as regards transmission efficiency and speech quality, or the economic importance of these features to dial and cable networks. But the careful thought that has gone into the making of the new design has resulted in a successful combination of technical, functional and aesthetic improvements that will surely be welcomed by all those who use the telephone.



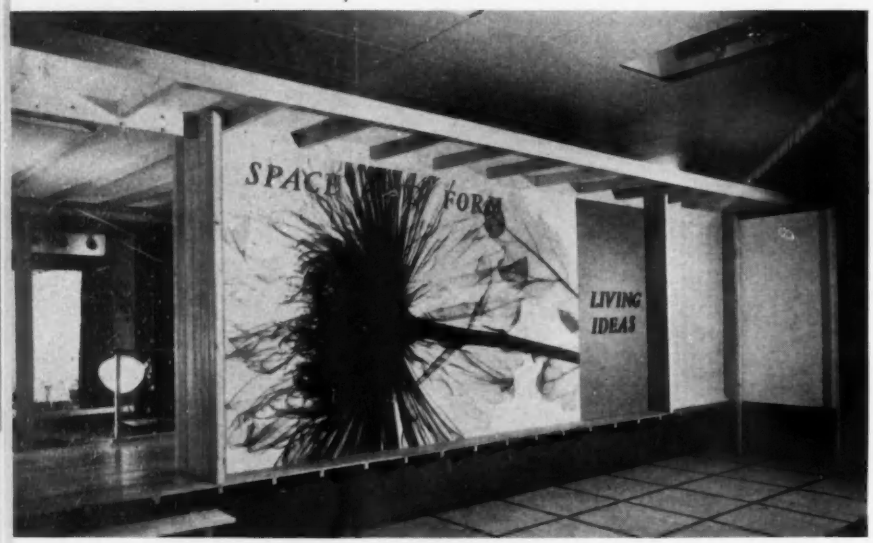
6 and **7** The simple contours of the new telephone can be seen in these illustrations.

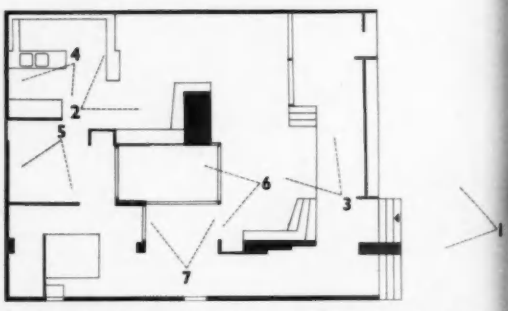
8 The handset has been designed so that it is easy to grasp and comfortable to hold. The setting of the earpiece and mouthpiece is based on careful research. There are no metal inserts, the transmitter and receiver insets are held in place by means of the caps.

DESIGN 115

Living ideas in Chester

An exhibition house, opened recently in a Chester shop introduces an international element to British ideas on home planning and interior design.





In this plan the numerals refer to the illustrations, showing the viewpoints from which the photographs were taken.

1 The entrance to the exhibit on the top floor.

2 The dining corner of the living area seen from the kitchen. On the left is a simple screen of two-way cabinets separating kitchen and dining areas, designed by Paul Gell. Chairs are Italian by Gio Ponti; table from Holland; wall hanging by Michael O'Connell; pottery lamp bases by Ann Wynn Reeves.

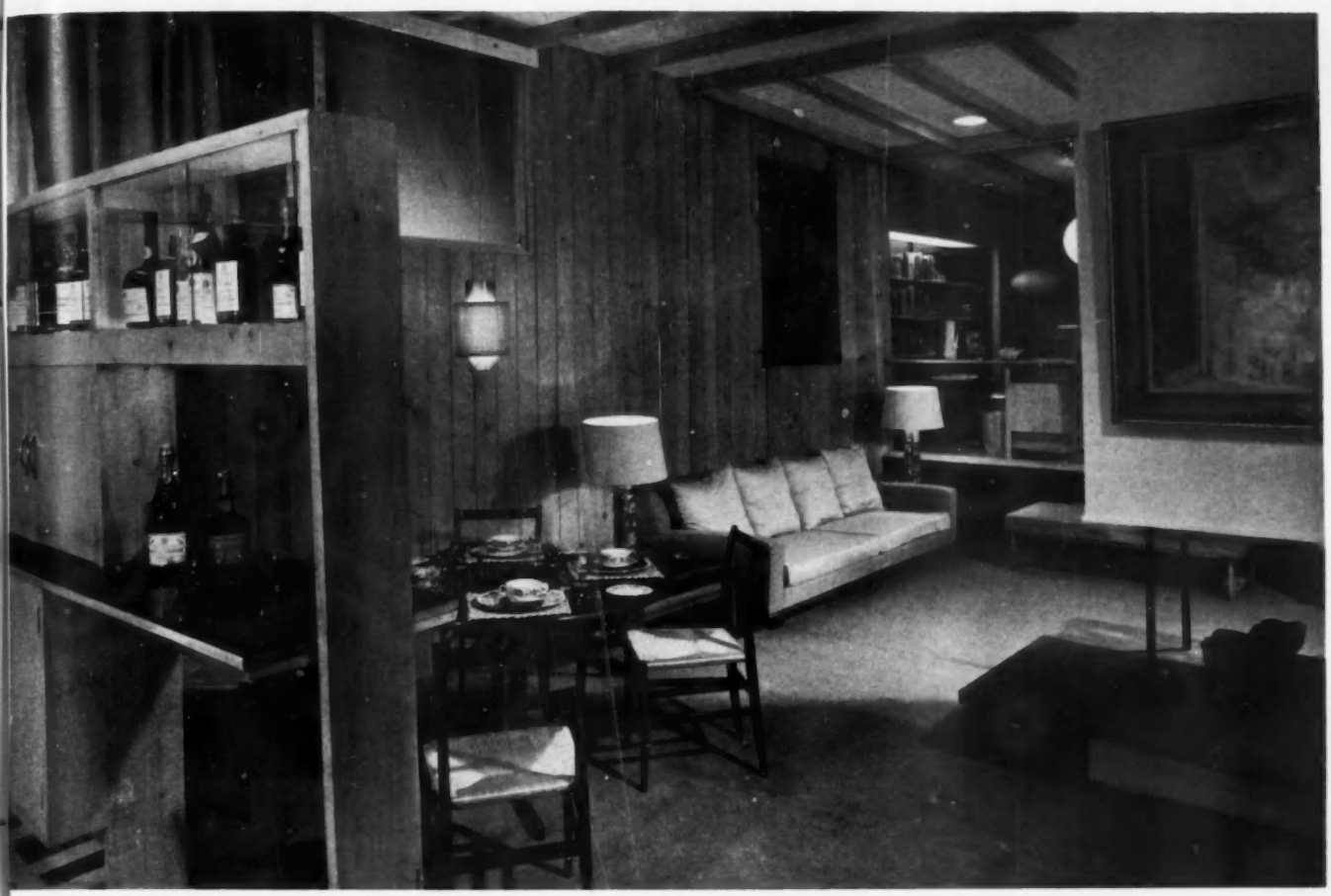
JOHN E. BLAKE

MORE DELIBERATE EXPERIMENTS in ways of living must have been made in modern times than in any other period in history. One thick, glossy American magazine recently went so far as to explain "how to convert your garage into an extra living area"; not, as the reader at first supposed, because you no longer have a car, but because, presumably, you love your car so much that nothing could be better than to dine and relax for the evening in its company. Coloured photographs showed immaculately laid tables and deeply upholstered chairs arranged against a background of the latest gleaming family sedan. The *Space and Form House*, built on the top floor of a leading department store in Chester, does not venture so novel an innovation, but it does suggest ideas for planning, furnishing and decorating your home that must be revolutionary to the majority of people who go to see it.

First, a word about the background to this unusual venture. Leonard Harris, chairman and managing director of Browns of Chester Ltd, and F. D. Bosley, head of the furnishing department, were anxious to promote a greater public awareness of the furnishing sections of the shop which are on the top floors. A semi-permanent exhibition to attract the public up to these floors was an obvious solution and the CoID was approached to recommend a designer who would help work out a scheme. Eventually Paul Gell was chosen from a list of names suggested by the CoID's Record of Designers and the final idea of the *Space and Form House* was evolved.

Framework for new thought

The problems of designing a show house are always fraught with difficulties. It must convey a sense of practicality (housewives are the first to criticise lack of attention to their detailed day-to-day requirements), yet it must be so arranged that the public can circulate freely in a way which would be unnatural in a real house. These difficulties are increased when the house is not built on an open site – as for example at *The Ideal Home Exhibition* – but must fit inside an existing building with limiting dimensions and structural supports which cannot be ignored. Mr Gell has accepted this challenge and has produced a design which is not a show house in the accepted sense, but is essentially an exhibition of ideas linked together within a framework which is symbolic rather than realistic. It does not matter, for example, that the ceiling timbers are lighter than would be necessary to support a roof or a second floor, or that no bathroom is included, or that the



central courtyard is too small to be of real use, or even, as one of the workmen putting some last minute finishing touches was heard to remark, "It's no place to have kids in".

As a house of ideas it is intended to stimulate thought. Why not put bright cushions on the floor around a low table – after all, women always do seem to sit on the floor? Why not have the sink and draining boards in the middle of the kitchen so that they are always within reach? Why not, if you are thinking of buying that expensive framed print of Van Gogh's yellow chair, commission instead a set of specially designed tiles or a printed hanging from a well known artist? Why not strip the paint off that tongue and groove boarded door, and off those bookshelves, and simply wax them to show the natural blond colour of the wood? Why not pull down that partition between the bedroom and the box room, and convert the box room into a sitting area, so that you can relax in your dressing gown while your husband and the neighbours are watching the boxing downstairs?

These and other thoughts will occur to the visitors as they linger in the various rooms – and if, on their way out, they find on the shop floor just the piece of furniture they have been looking for, then the house will have succeeded amply in its aim.

What are the ingredients of the design that make it different from existing notions of modern British domestic interiors? The designer has deliberately set out to create a relaxing and informal home environment in which perhaps the dominant impression is a sense of privacy and quiet. Picture windows have a habit of working both ways and here the designer has allowed no such opportunities for the neighbours to see who is being entertained to dinner. The house looks inwards rather than outwards and in this respect resembles the Smithsons' *House of the Future* (DESIGN May 1956 page 44): a house which is conceived as part of a pattern of urban development. Here, however, the resemblance ends for Mr Gell's house has been thought of as a house of today, to suit today's ideas of structure, comfort and fashion. Its interior belies the concept of a town house, and once through the street door the atmosphere takes on something of the roughness and peace of the country.

Mr Gell's method of achieving this effect has been frankly eclectic. Elements from the modern American ranch house – the open plan, matchboard walls, long settee with end tables and lamps – mingle with characteristically Japanese details – floor cushions,

Sam Lambert

Paul Gell, *the designer of the Space and Form House*

paper lanterns, the courtyard structure – and again with some often seen Italian motifs: the open-sided fireplace (would it ever burn without smoking?) glass-topped table and shaggy rug on tiled floor. Yet these diverse elements combine without disunity and the result is, one realises, an exercise in a modern international style, a style which seems strange only because it is seldom attempted by British designers. This internationalism is reinforced by the furnishings, many examples of which have been specially imported and previously will not have been seen in this country.

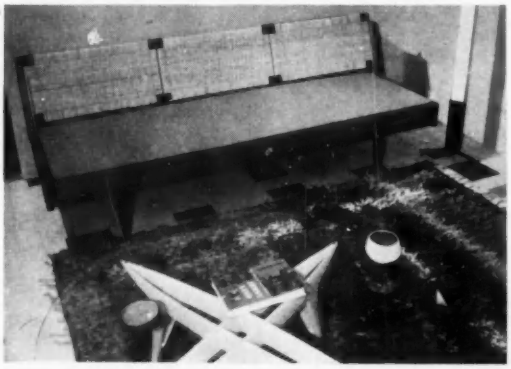
Prick this British bubble

British show houses have been criticised in the past by foreign visitors for the riot of pattern displayed on walls, floor, curtains and covers, and for the amount of furniture that clutters the rooms. But the British like plenty of pattern, one explains, and there must be enough chairs for the unexpected guest. Perhaps the *Space and Form House* will prick this particular British bubble, for there is not a square inch of wallpaper, no patterned carpet, no patterned covers, only the few drapes, two rugs, a panel of tiles. The house seems spacious because, one at first thinks, there is so little furniture. Yet examination shows that the living area alone will seat a dozen people or more in comfort. Almost everywhere natural materials provide the warmth and richness that elsewhere is supplied by paper and paint. Wood predominates, but slate, brick, cobbles, rattan and rush matting (sometimes used on the wall) combine with the pale greens and yellows and occasional splashes of brighter colour, to produce an effect that, even the most conservative must admit, would be extraordinarily pleasant to live with.

3 The main living area seen from just inside the entrance. The study area at the end of the raised platform is separated from the living area by a glass screen. On the right hand wall (not shown here) a series of cabinets contain Hi Fi equipment and a projector which focuses on the plain wall of the chimney breast. Pendant lamp over desk and floor standing lamp *left* are from Japan; wire frame chair is American from Knoll, designed by Bertoia; settee in the background was designed by Paul Gell.

3

4 Kitchen area. Built-in cabinet, designed by Paul Gell, has lift-up cupboard fronts which slide out of the way beneath the drawers. Wall oven by The English Electric Co Ltd is separate from cooking top. The central sink unit is not shown.

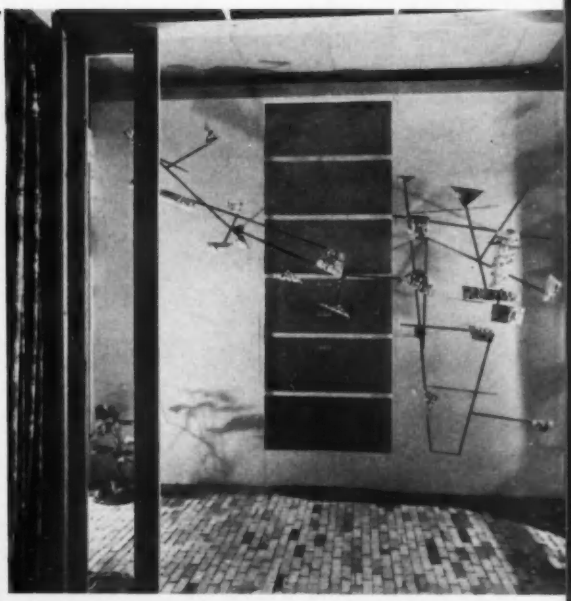


5 This area is next to the kitchen and would be used as an extension to the living area or as an extra bedroom. Glass-topped table is Italian by Gio Ponti; rug is by Peter Collingwood; bed settee, with space for bed clothes behind the rattan covered back, was designed by Hans Wegner from Denmark; vertical fluorescent lamp is Dutch.

6 Central courtyard which would be open to the sky. The section containing the slatted bench (by Florence Knoll from America) is under cover and can be closed off from the open section by a sliding glass door, forming a central communicating corridor. The brick floor is carried through into the living area so that the sense of outdoors is carried inside the house. In the background is the main bedroom with a sitting area to the left. Although this open plan arrangement makes all rooms visible to each other, they can be closed off by curtains to give privacy.

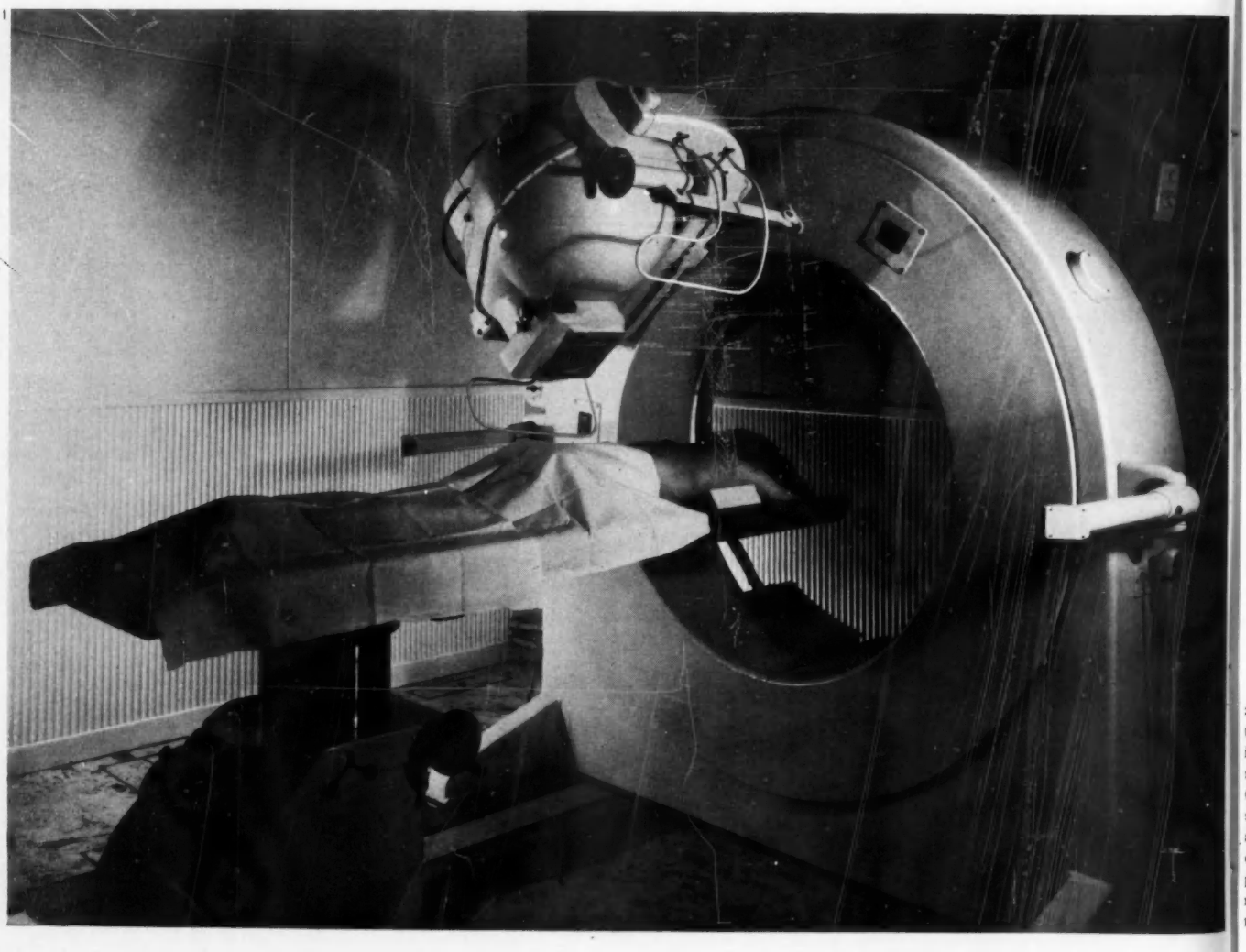
7 Abstract sculpture in the courtyard designed by Paul Gell. It is made of iron and rough glazed ceramics.

8 *Tree* tile panel in the living area specially designed by Ann Wynn Reeves. The curtain, designed by Paule Marrot, is French. The craft-made log basket was supplied by Heal's Contracts Ltd.



Equipment for cobalt radiation

The designer of equipment which uses radio-active materials is faced with problems for which there are few precedents. He must create the vocabulary as well as the grammar of his new techniques as he goes along. As nuclear phenomena become increasingly used as sources of energy, so the emerging idiom becomes more important to the design world generally. Of special interest is the Orbitron *apparatus now being introduced into several British and Italian hospitals for use in radio-therapy.*



1

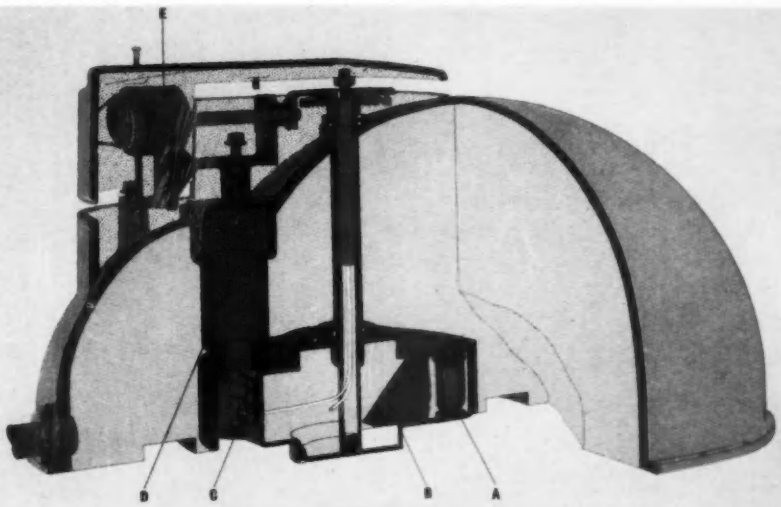
THE USE OF GAMMA RADIATION from natural radium for the treatment of certain malignant diseases has been known for many years. Radium has been used enclosed in needles implanted in the affected tissues, and occasionally it has been mounted in shielded containers from which the radiation has been allowed to escape in the form of a relatively narrow but penetrati ng beam. Recent developments in the construction of nuclear reactors have permitted the artificial production on a large scale of radioactive isotopes of various elements, such as cobalt, which are not only more plentiful than natural radium but which may also be chosen for their longer or shorter active lives or for their greater or lesser power, according to requirements. *Cobalt* 60 has been selected as the most suitable source for use in radio-therapy, and the latest equipment has been specially designed to house this material.

The most disagreeable characteristics of any radioactive material are the facts that the radiation emerges continuously, that it issues in all directions, that it penetrates great distances through most materials, and that it is extremely harmful to all forms of life when received in uncontrolled doses. A source of *Cobalt* 60, having an activity of 2,000 curies, has to be enclosed within a container of lead having walls nearly one-ft thick, and weighing one and a half tons, in order to reduce the stray radiation to the low level allowed by British safety regulations. The designer is thus confronted with a problem which possesses something of the nature of a burglar proof and water proof safe, except that he has to keep the intruder in, rather than out. In addition the apparatus must be operable by remote control, and any mechanical or electrical failure must have the effect of returning the radioactive source to a safe position.

Another feature of this type of machine is that many radio-therapy techniques demand that the source of

1 The *Orbitron* apparatus for radio-therapy, designed to house man-made isotopes of cobalt as the source of radiation. Radioactive cobalt does not need to be excited or connected up in any way – it gives off radiation continuously at an energy of over one million electron volts, and it is more than five years before its activity has fallen to half value. There is no way of switching it off. To protect the patient and attendants inside the room, the source is housed within a container of solid lead nearly one-ft thick, from which a beam can be directed by remote control. The pear-shaped container is mounted on a trunnion and the trunnion is mounted on a large ring, so that the beam may be directed inwards at any desired angle. The ring is power driven and can be made to describe a circle or an arc at the desired speed. The beam always passes through the centreline of the annulus. If the patient is so positioned that the affected tissue is on this centreline, then the affected tissue at the focus of the beam will be irradiated continuously, but neighbouring areas and the skin will receive only a momentary dose.

2



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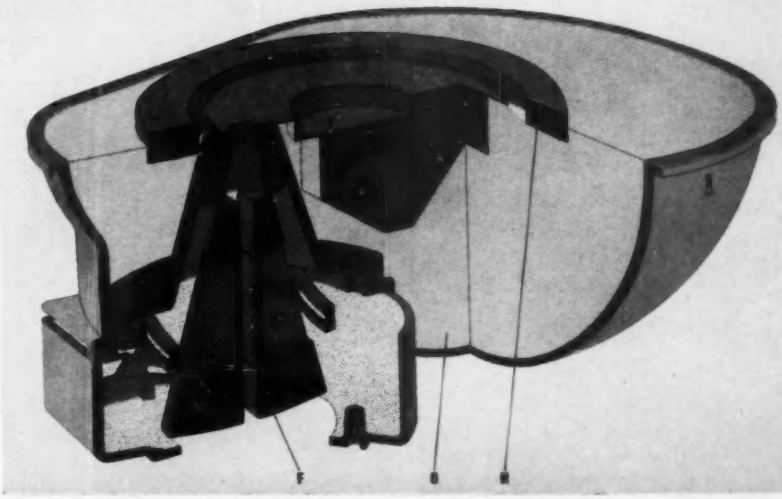
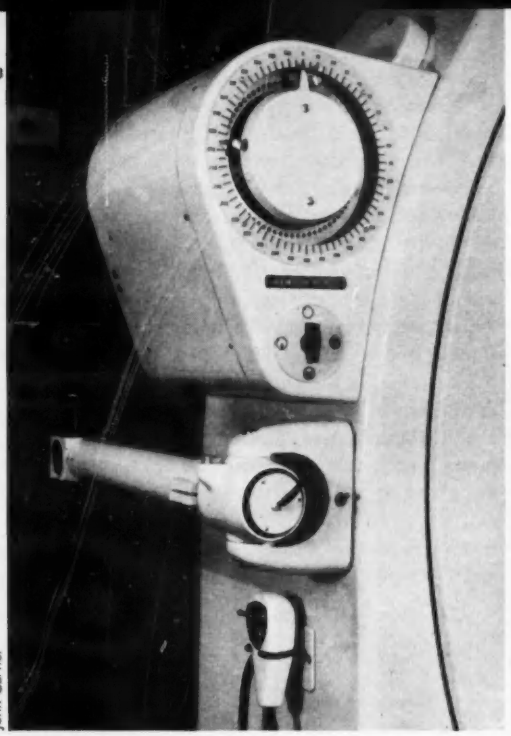


2 The source A is mounted in a rotatable disc B and normally lies at the centre of the larger end of the pear-shaped containers, G. When irradiation is required the disc is rotated by motor E, through remote control until the source is at the centre of the small end, C. Beneath it is an opening through which a beam emerges, the size of the beam being controlled by shutters, F. The disc B rotates against the resistance of springs, so that in the event of electrical or mechanical failure the disc would swing back into the 'safe' position. Access to the source for replacement, etc, is gained by removing plug D. H is an anti-scatter ring barring the gap between the halves of the main assembly.

Equipment for cobalt radiation

3



John Garner

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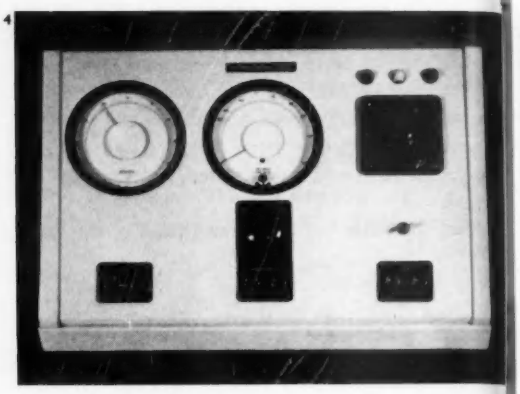

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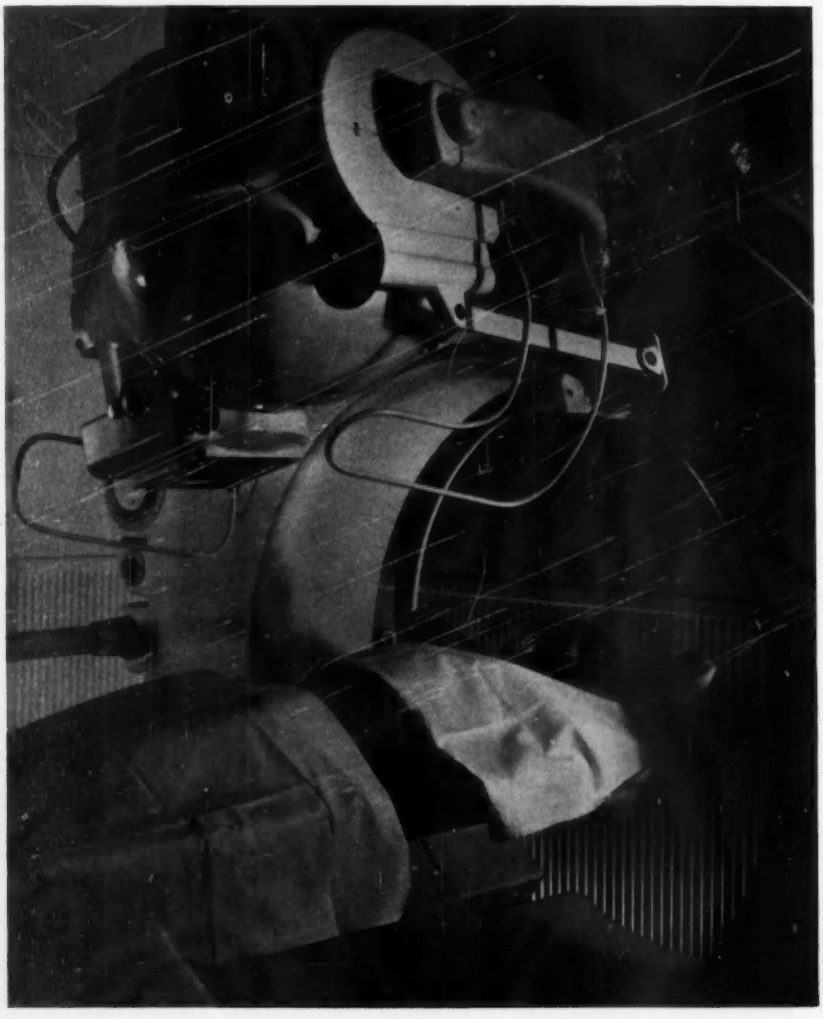


3 The source may be kept stationary, moved full circle, moved through a given arc, or oscillated. The programme is pre-set at the control station in the machine. There is a portable hand set at each side to give the attendant freedom of movement while setting up the machine and positioning the patient. The periscope-like arm, seen here in a retracted position, projects a pencil of light indicating the centreline of the annulus. The detailing of some structural components, such as the 'periscope' yoke and trunnion, is more pleasing to the eye than some of the instrumentation.

4 The remote control console looks anaemic by comparison with the machine itself, and would have been a lot better if some attention had been paid to the recommendations of the Applied Psychology Research Unit of the British Medical Research Council, concerning the placing of controls and the detailing of dials. For example, the console repeater showing the angular position of the source offends all canon by being marked at every two degrees and numbered at every 30. The corresponding dial on the machine, 3, is more properly marked at every five degrees and numbered at every 10.

5 The advantages of the annular form of mounting and of the tracked cantilevered table can be seen very clearly here. The wire-like loops are guards which shut off the power if the head approaches too close to an obstruction. In this prototype model the satisfying appearance of the essentially engineering parts, such as the big yoke and the shutter frame, is spoiled by such things as the electric cable pinned on the underside in full view of the patient. In later models a number of detail modifications (including concealing the cables) have been carried out.

radiation shall move in a circle or arc so that there is a focus at the appropriate point within the affected tissue which is thus irradiated continuously, while the surrounding healthy tissues are irradiated only momentarily as the beam moves through them. Consequently, despite its bulk and tremendous weight, the apparatus must perform gyrations which have both the character and the precision of optical measuring instruments.

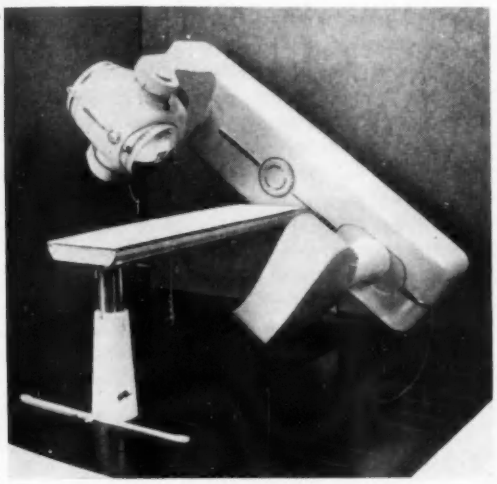
Probably the most impressive of the designs at present available is the *Orbitron*, made by Newton Victor Ltd, X-ray department of Metropolitan-Vickers Electrical Co Ltd. This design provides logical answers to the problems, and it has been well executed. Because of the heavy weights involved, the precision demanded, and the stringent safety requirements to be observed, the problem invites, and has received, a solution based upon the fundamentals of mechanical design.

If nuclear engineering promises to bring about a rebirth of design according to basic principles of mechanical engineering - which have latterly been somewhat obscured by the insistent demands of design for production - then the *Orbitron* may indeed be a pointer to the future. For those who are looking for a sign as to 'the shape of things to come', however, there is little here to help them.

Despite the scientifically advanced nature of the problem, the need for hygienically smooth contours combined with the need to create a favourable impact upon the eye of the patient, the united efforts of the design team headed by A. K. Nuttall, chief engineer of Newton Victor Ltd, and assisted by Jack Howe, industrial design consultant to Metropolitan-Vickers, have produced a form which expresses honest engineering, applied with sensitivity and perception.

Three other solutions

6



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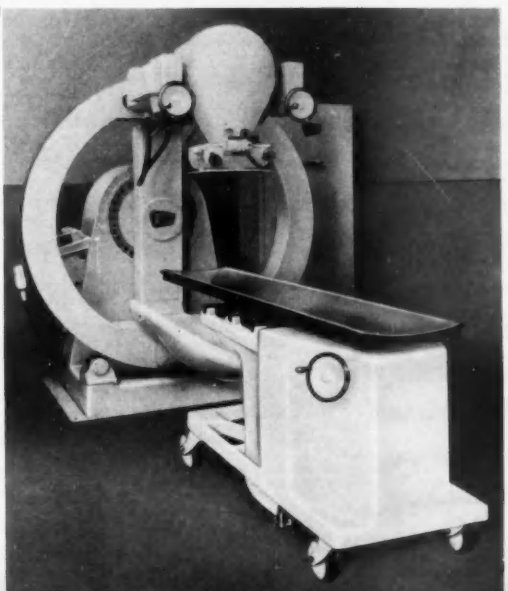


6 A British firm, Nuclear Engineering Ltd, places the source in a container at the end of a beam. The beam swivels on a single giant pedestal bearing. At the other end of the beam is a solid lead shield which absorbs the radiation as it comes out the other side of the patient. This feature has the advantage of permitting thinner lead linings to the walls of the treatment room, but restricts the possible positions for the patient. The design is decorated with chromium stripes and knobs.

7 In attempting to provide the versatility which has since been achieved by the *Orbitron*, but without having hit on the idea of the annulus, Atomic Energy of Canada Ltd has adopted a gigantic pedestal bearing carrying a curved beam which runs on a curved track to give adjustment to conical foci. This design, too, incorporates a lead shield doubling the role of counterweight.

8 Another design which has achieved considerable virtuosity at the cost of mechanical complication is the *Rotaray* made by the Keleket X-Ray Corporation of U S A. This machine embodies both the annular bearing as used in the *Orbitron* and the giant pedestal bearing as used in the other designs. The general effect is a rather less accessible and much more formidable looking machine than either of the later British designs.

COST *element in the design of mouldings*

This article discusses the basic factors which govern the ultimate cost of a moulded plastics product. Such items as the cost of the moulding material itself, and the speed and method of production which it permits, are weighed against the desired performance of the product. It can be seen that a certain material, which fulfils the required performance, will be too expensive and must therefore be substituted for the one with a lower performance. On the other hand an initial high cost of material can often be justified on grounds of superior properties.

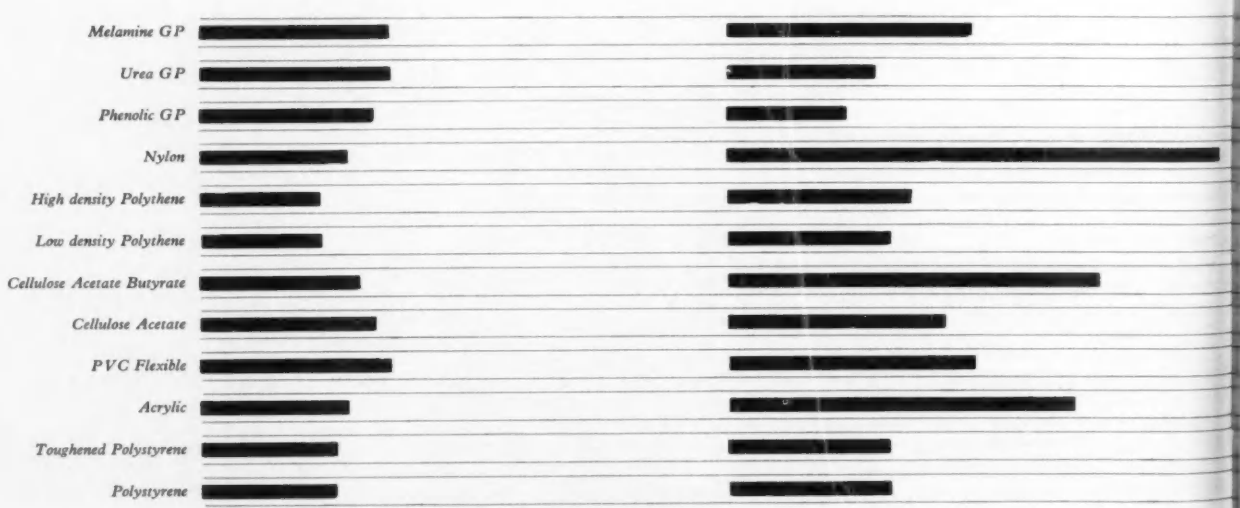
THE NUMBER OF PLASTICS MATERIALS now available to the designer of plastics mouldings is considerable and the selection of the particular material to be used in any given application is governed by two main factors, namely the performance properties obtainable and its cost. The particular requirements, such as rigidity, impact strength, colour range, etc, desired in a projected moulding must be set against those properties obtaining in the various plastics materials. At the same time, the final cost of producing the moulding in any of these alternative materials must be closely considered since it may vary considerably.

The process is essentially one of compromise between the competing elements of cost and desired and obtainable performance properties. For example, in the case of a competitive consumer article of any size in which a good resistance to shock is required it is probably of little use to consider nylon, for although this material has outstanding impact resistance, its cost is more than likely to make the article prohibitive in price. Thus a compromise will have to be made by reducing the originally desired strength in favour of a material with a lower performance but of more moderate cost. Occasionally, of course, the superior properties of the more expensive materials will outweigh the higher cost and then their use is warranted; the nylon comb is a good example of this.

The cost of a plastics moulding from the materials point of view comprises the cost of the material itself and the method and speed of production it permits. The cost of material for a specific moulding is of course a function of its weight and price; the relative weights per cubic inch of those various plastics materials normally employed in consumer mouldings are shown in 1. However, a straight comparison of weights on a specific moulding is not always possible, since it is often necessary to redesign the wall sections, etc, to suit the particular strength and rigidity available in the material. Compression moulded materials

1 Relative weights

2 Relative cost of materials for equal volume



such as phenolic or urea are often moulded in heavier sections than rigid thermoplastic materials such as polystyrene. Nylon in turn may be used in still thinner sections. The relative prices of the more commonly used materials in their general purpose form are shown in **2**. These, of course, vary slightly from time to time, while special grades may cost considerably more.

Speed and cost

The speed of production is dependent upon the particular method of moulding relevant to the component and material – injection, compression or transfer – and to the rate of output possible. This last is a factor of the curing or injection and setting rate possible with the material and the thickness of section. Low density polythene materials for instance will mould more rapidly than the high density polythenes, while a thicker section – taking longer for the moulding heat to penetrate (or in the case of thermoplastic mouldings to lose heat and set) – will have a lower speed of production than thin sections.

This speed of production thus comprises the number of cycles per hour possible with a given component and material, although the total output may, of course, be increased by multiple tool impressions, but with an increased tool cost. **3** shows the relative speed of production possible with the more common materials based on a particular component – in this case a $3 \times \frac{1}{8}$ inch disc. Other factors can affect the output cycle – such as the use of special high impact compression materials which are bulky in the raw material form (high bulk factor materials), and materials which cannot be previously compressed into pellets. Both of these may slow up the loading of the materials into the tool and make preheating more difficult, with a consequent increase in cost.

Similarly the employment of some thermoplastic materials of low injection or setting speeds will result in increased cost. An item that can occur with any material is of course the use of inserts in the mouldings, and here not only is the cost increased by the actual expense of the inserts but also for the time taken in loading them into the tool before moulding commences. For this reason it is sometimes more economic to cement the inserts into the moulding as an 'after operation'. **4** shows the combined relative effect of the cost of the material with the speed of production possible with that material. From this it can be seen that some materials of high cost are in fact more economic than would appear due to the high speed of production they permit.

Again, however, it should be pointed out that a straight comparison is not always possible in any of these illustrations. For instance, when changing from one material to another it may be desirable or essential to change the thickness of the moulding, and hence the weight, either to provide optimum moulding conditions or to correct for any changes in the rigidity of the moulding due to differing natural stiffness in the alternative material.

The effects of finishing operations on the total cost must not be overlooked. With a component moulded in a thermosetting material for instance it may be necessary to provide operations of flash removal and drilling, etc, which might be obviated if the component were injection moulded in a thermoplastic material. This and similar questions such as polishing, illustrate the need for considering the cost aspect over the completely finished moulding.

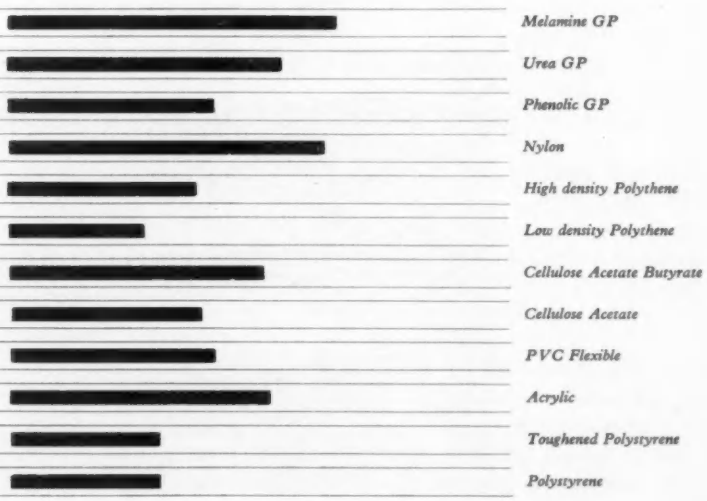
For consumer mouldings at the present time the predominating materials in the injection field are low density polythene and polystyrene (both unmodified and toughened grades), and in compression materials general purpose phenolic, urea and melamine.

In general these materials are the most economic in their respective fields (with the exception of melamine) and in many applications their properties are adequate for the service required. It is an unfortunate fact, however, that in some cases the attraction of lower cost has caused a product demanding special properties to be produced in one of the low cost materials in preference to one having superior properties but a higher cost. This misuse of materials is of course aided by the inability of most of the general public to differentiate between many of the various plastics materials.

The pressure upon a designer or manufacturer to employ one of the lower cost materials is of course very considerable

3 Relative speed of production

4 Typical relative cost of moulding (material and speed)



Cost element in the design of mouldings

once the effect on the final price of changing to a more expensive material is realised, and this is illustrated in the hypothetical example given in the table BELOW RIGHT. If, however, he is convinced that the superior material is justified he must either proceed on the increased price or else abandon the project. To produce an article in an inferior material (or even to skimp a satisfactory material) is to damage ultimately his own reputation and the confidence of the public in plastics products.

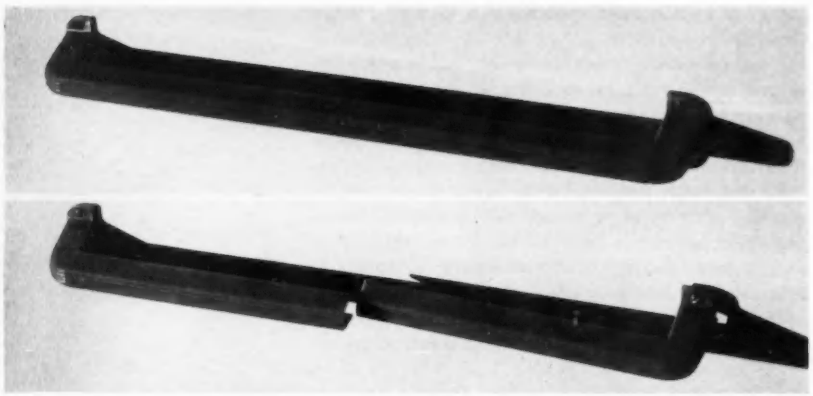
Materials for the future

What plastics materials are likely to be used for consumer mouldings in the foreseeable future? As at present this will continue to be determined mainly by their relative costs and any future materials must compare favourably in this respect if they are to secure any widespread adoption. There is every reason to believe that the present extensive use of low density polythene in kitchenware mouldings will continue and expand due to the material's toughness, colour range, non-toxicity and favourable cost. Beyond this, however, the use of the newer high density polythenes can be expected to expand considerably since their increased rigidity and improved resistance to heat will make them suitable for some applications previously unsuitable for plastics including, in many instances, the replacement of metals. Their adoption into components of considerable size for domestic machinery can be expected here, where the materials' higher properties will be sufficient to offset their slightly greater cost. There is also every reason to believe that the present extensive use of polystyrene and toughened polystyrene will continue since there are no new materials at present envisaged which will offer greater economy.

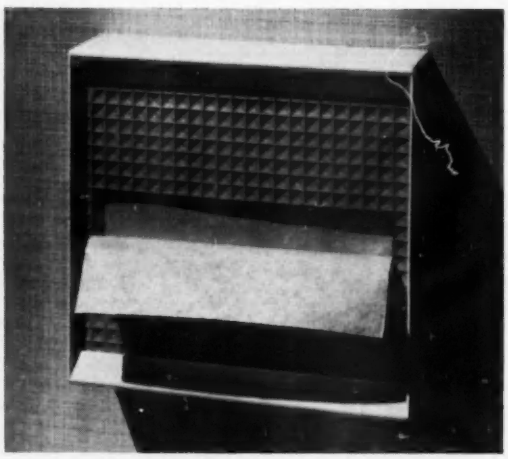
Technical improvements in both polystyrene and toughened polystyrene can, however, be expected eventually, particularly perhaps with respect to improved heat and solvent resistance, and greater strength and suitability for exterior applications. In the thermosetting plastics little change in the present use of materials in the mass market can be expected in the foreseeable future, either on technical or economic grounds. Their application will, however, continue at a high level – particularly phenolic materials – due to their rigidity and good heat and chemical resistance at a low cost. In the higher cost materials the application of nylon can be expected to extend, although due to its expense it is likely to be confined generally to smaller mouldings. The development of other materials having properties approaching that of nylon at lower cost can be expected in time and these are assured of a wide market.

However, quite apart from actual changes of material, future developments in moulding plant and technique are also opening up extended applications of plastics mouldings; here again it is their economic advantage which is justifying their adoption. Examples of these are illustrated in the increasing use of fully automatic compression presses, high speed injection presses for container production and, at the other end of the scale, the ability to produce even larger mouldings, allowing items at present made up from a number of parts to be produced in a single piece.

A continuous expansion in the use of plastics mouldings for consumer application can therefore be confidently expected and this will range from the immediate probables such as moulded luggage ware, occasional furniture, full size dustbins, all-plastics refrigerators and washing machines, etc, to the more distant future of all-moulded sink units, plastics book covers and bicycles and even the nylon water tap and plastics saucepans with an integral electric heater. In nearly all these future possibilities, however, the economic basis is likely to remain the controlling feature.



ABOVE This towel rail, which snapped easily, is produced in toughened polystyrene which is too weak for its application. The use of a more expensive material, such as cellulose acetate, or even nylon would be warranted. BELOW A correct use of toughened polystyrene. The advantages of colour and moderate cost are achieved without overtaxing the strength properties of the material.



Effect on final cost of changing moulding material for a household article

Original material – Polystyrene Copolymer at 2s 11d per lb (18 grms per cu inch)

Proposed material – Cellulose Acetate Butyrate at 5s 8d per lb (21 grms per cu inch)

	Polystyrene Copolymer £ s d	*Cellulose Acetate Butyrate* £ s d
Cost of material in moulding	4 5	10 6
Moulding and finishing cost	5 7	5 7
Cost ex factory	10 0	16 1
Wholesale price @ 20 per cent	12 6	1 0 1¼
Retail price @ 33⅓ per cent including purchase tax @ 15 per cent	1 0 7½	1 13 1¾
Difference in cost of material	6 1	
Difference in final price	12 6½	

South Africa

Competitive market for British goods

In this third article of the series on British trade with individual countries of the Commonwealth the author, who is editor and publisher of two South African journals, Industrial Architecture *and* House & Home, *discusses British trade prospects in this important market. He believes that although Britain remains the largest single exporter to South Africa, more could be done to increase sales by taking part in trade fairs and by considering local requirements.*

CHARLES WINCKLEY

TODAY BRITAIN'S POSITION as the leading exporter of goods to South Africa is being seriously challenged by a number of other countries, and it is clear that full advantage is not being taken of the opportunities that exist for increased trade. The USA is becoming Britain's chief competitor and no doubt the decline of Britain's former authority in South Africa has contributed to this challenge, though it must be admitted that Britain's sometimes dilatory approach to her export drive will not stand up to the tougher methods from the American continent.

In spite of this, statistics on South Africa's trade with the outside world clearly indicate the superior position still held by Britain. The latest figures show that imports to South Africa from the United Kingdom totalled £156 million in 1956, compared with £166 million in 1955, £153 million in 1954, £160 million in 1953, and £145 million in 1952. Comparable figures from the USA for the same years were £99 million, £100 million, £88 million, £79 million and £88 million. But there is also growing competition from Germany, the Netherlands, Belgium, France, Sweden and Japan. Germany increased her exports to South Africa from £17 million in 1952 to £31 million in 1956. The other countries mentioned each increased their exports from approximately £6 million in 1952 to £10 million in 1956. The Commonwealth generally has also increased its trade with South Africa. Imports from Canada, for example, have been stepped up from £15 million in 1954 to £22 million in 1956. Imports to South Africa from the whole Commonwealth (including Britain) were 46 per cent of the total, 31·6 per cent of this figure being contributed by the UK.

The high percentage of voters in most constituencies during the last election shows the obsession for politics that is general in South Africa today. As such, it is necessary to touch briefly on the economic repercussions of political policy. The United Party while holding on to social segregation of white and non-white peoples, favours close contacts with the British Commonwealth. The Nationalists, on the other hand, urge the formation of a republic. They also agitate for more Apartheid, socially and industrially. The first time that a completely Nationalist government came into office in South Africa was in 1948 when it assumed power with an uneasy majority. Since then it has occupied the political saddle and thus has influenced industry, trade, imports and exports with its economic programme.

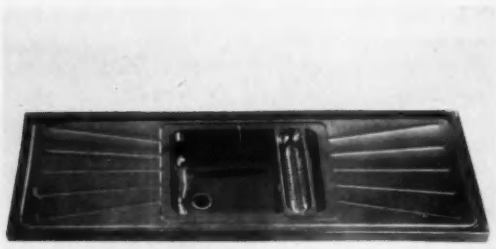
Capital investments

From the outset, it has sought to encourage overseas capital and overseas industrial undertakings, in spite of repeated demands that South Africa should be responsible for her own destiny. It has been estimated that £600 million have been invested in South Africa by Britain since the war, more than half of which appears to have been invested in manufacturing industries. Many of the bigger industrial concerns established in the Union since the war bear well known British names. This is particularly the case in the heavy engineering industry.

American capital also, while not reaching these high figures, shows an increasing interest in South Africa as a field for investment. At the end of 1955 American investments in South Africa amounted to approximately $257 million. Five years previously this figure had stood at $140 million, representing a rise of $117 million in five years.

Although South Africa was once largely an agricultural country, the development of secondary industry has been rapid in recent years. At the same time, import control has been steadily decreasing, with the result that last year the value of imported consumer goods

DESIGN 115



rose by £10 million, while the value of imported motor vehicles rose by £26 million.

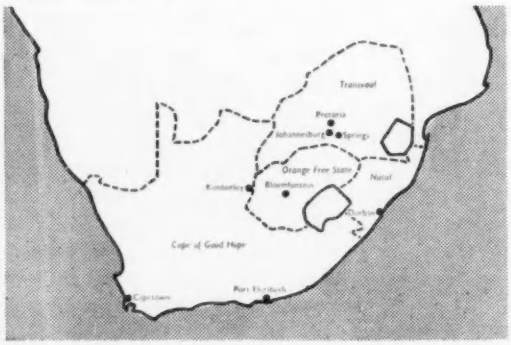
Britain has not always taken advantage of the privileged position she has had in this expanding pattern of trade with South Africa. Old fashioned ways of marketing new goods sooner or later crumple up and although the names of branded goods are brought to the notice of the public through the skilled efforts of advertising agencies, there are many more shop windows that Britain could occupy if she were more fully alert to the South African market. It is incomprehensible for example why there is no British pavilion at the *Rand Show*. This show is held annually in Johannesburg and attracts by far the biggest attendance of any similar exhibition in any part of the Union. In a white population of 3 million people, more than 600,000 visited the show this year.

Opportunities for exhibition

The *Rand Show* could provide Britain with an excellent opportunity to demonstrate her genius in exhibition design. South African manufacturers are improving their displays and selling techniques from year to year, but they have yet to see in this country exhibitions like *Britain Can Make It*, the *Festival of Britain* or The Design Centre.

South African manufacturers have been content to follow European trends rather than attempt to create a national style. Although a traditional outlook in home furnishings and equipment has prevailed in the past, the general level of taste has improved markedly in recent years, and today is not dissimilar from that in Britain. Some of the leading stores have played an important part in this process of raising standards and it is now possible to furnish and equip a home with outstanding designs from many parts of the world. In spite of this, little success has resulted from efforts to gain recognition for the design profession. Out of the 80 or so members of the South African Society of Industrial Artists by far the biggest majority are graphic designers and typographers, with only a handful concerned with industrial products.

Geographical distances and climatic conditions naturally influence the way of life, and some of the old-fashioned interiors to be found among rural communities contrast sharply with the sleek American car possessed by any farmer of standing. To travel by road from Capetown to Johannesburg (900 miles) is thought to be only a minor undertaking. As great distances separate the main centres the popularity of the American motor can be understood. To think of covering such distances in a small English roadster would be almost impossible, and yet it is one of the minor mysteries in South Africa that English car manufacturers appear not to have considered this market.



South Africa and Great Britain are shown here on a similar scale. The five biggest cities with their total populations are Johannesburg (1 million), Capetown (700,000), Durban (600,000), Pretoria (300,000) and Port Elizabeth (200,000).

Keeping pace with change

In spite of the figures quoted in this article, which would seem to suggest that Britain is sitting pretty in her trading relationship with South Africa, economic adjustment and a study of the local market have not kept pace with political change. We still have far to go before every person in South Africa, black or white, has too much to live on, but there is already a strong demand for well designed goods which meet local demands. Britain has been generous in seeking to build up political communities which were once under her direct authority. She must now accustom herself economically to a changing scene, or she will be pushed aside by those nations who are prepared, as far as South Africa is concerned, to investigate thoroughly the conditions of the market as it exists today.

1 Stainless steel sink and draining boards designed to fit over a free standing cabinet. The sink tidy is an optional extra and is also available as a separate item. The sink unit is from a wide range of models, ranging from 3 ft to 10 ft in length, by a firm which also manufactures a variety of domestic and medical hollowware. MAKER *Mewa Mfg Co (Pty) Ltd. Prices of the sinks range from £7 4s for a 3-ft unit to £23 18s 3d for a 10-ft unit.*

2 Examples from a range of kitchen storage cabinets finished in natural wood and incorporating separate electric ovens and cooking top. MAKERS (*cabinets*) *Model Kitchens;* (*ovens and hotplate*). *Univa Metal Works (Ptg) Ltd. Oven £76 19s 6d, hotplate £39 19s 6d. Drawer unit shown finished in natural wood £13 15s.*

3 Sideboard in sapele mahogany. DESIGNER *J. H. Tabraham.* MAKER *D. S. Vorster & Co Pty Ltd. £57 15s.*

4 Dressing table with lift-up top has space for cosmetic articles and also doubles as a writing desk. The chair has a woven cane seat and back on a steel rod frame. DESIGNER *J. Napier Procter.* MAKER *Indecor Industries. Dressing table £18 18s, chair £4 18s 6d.*

5 This dining chair has a white raw-hide seat on a sapele mahogany frame. DESIGNER *Gerald Abramovitz.* MAKER *Duncan Bayne (Pty) Ltd. £6 15s.*

6 Electric cooker with thermostat control on all rings, and oven timer. This firm also manufactures a range of kitchen storage cabinets with stainless steel tops. MAKER *C. J. Fuchs Ltd.*

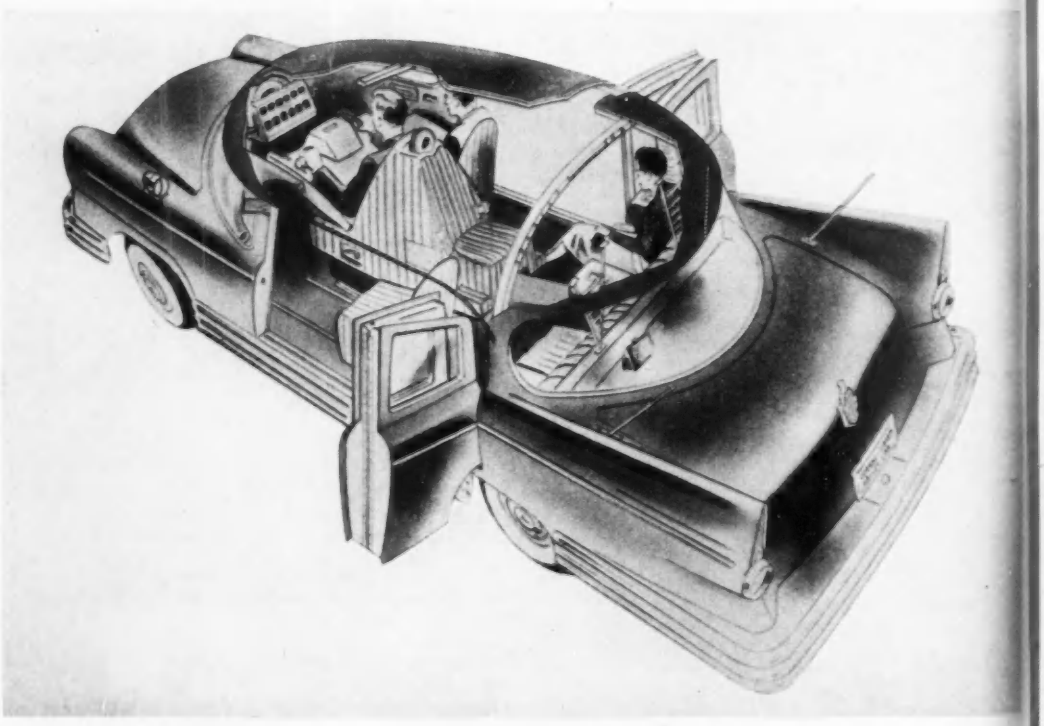
USA: experiment in survival

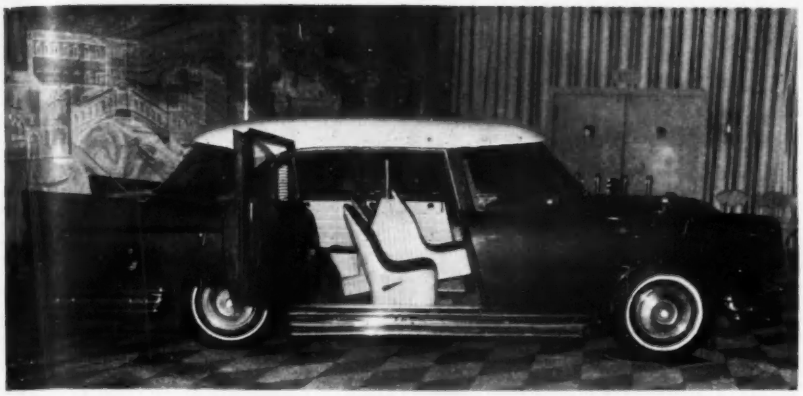
THE ARTICLE ON PAGES 29–35 points to the need for car designers to pay more attention to the fundamental physical and psychological requirements of the user. Failure to consider these requirements not only leads to minor dissatisfactions but, far more important, may result in an accident due to the driver's attention being distracted. Much experimental work on accident prevention remains to be done, but the construction in America of a car designed to show what car manufacturers could be doing now to reduce the growing toll of dead and injured on the roads, is a big step in the right direction and deserves detailed study by the industry.

The car, known as the Cornell-Liberty Safety Car, was sponsored by the Liberty Mutual Insurance Co and was built under the direction of Edward R. Dye by the Cornell Aeronautical Laboratory Inc, an organisation which had already made an extensive study of crash injury in aircraft. The final design is the culmination of five years of crash testing and other research.

From the outset it was recognised that a two pronged approach was necessary. Of first importance was the need to consider those aspects of the design which would help to prevent a crash taking place – comfortable driving position, conveniently placed controls, good vision, the lack of distractions, and so on. Should a crash occur, however, as much as possible should be done to prevent injury to driver, passengers and pedestrians – protective bumpers all round the car, the absence of projections inside and out: the whole concept of packaging the passengers. Altogether over 50 safety features have been built into this experimental six-seater family car which outwardly conforms to the general shape and proportions of current American models. Some of the more important features are detailed in the captions to the illustrations.

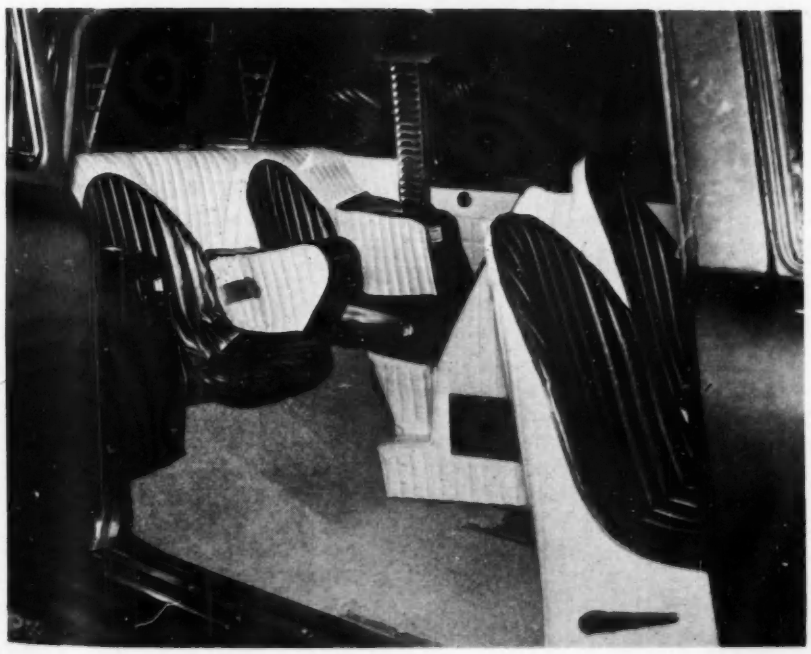
The general layout of the Cornell-Liberty Safety Car can be seen in this cut-away diagram. The control panel is shown pulled down into the driving position. Roll-over bars give added support to the roof structure should the car turn over.





This exterior view shows the unusual door design. The door, in two sections hinged at the centre and to the rear body post, slides open on rollers moving in a track. When closed the door is secured by three bars and maintains full structural support for the car body. It can be opened and closed by the driver without leaving his seat. The windscreen has a constant radius curvature which does not distort the view and provides the driver with 180° vision. Windscreen wipers retract out of sight when not in use. There are both front and side bumpers which are cushioned on shock absorbing cellular plastics material. Door handles are recessed and all unnecessary projections, which could injure pedestrians, are omitted.

The driver sits forward of his passengers in the centre of the car giving him better control. The steering wheel, which causes many chest injuries in car smashes, has been replaced by horizontal handles controlling a hydraulically operated steering mechanism. The horn button is placed in the end of the right handle and the headlight dip switch in the left handle. Other buttons for indicators, gear change and lighting are so placed that they can be operated without removing the hands from the steering handles. When the driver is ready to start, the whole control panel swings down to a convenient position and the driver is held in his seat by the padded U-shaped yoke which prevents him being thrown forward in a crash. Similar adjustable yokes are provided for the two front seat passengers. The speedometer is placed in a hood immediately below the driver's line of sight and consists of a rotating dial with a fixed pointer. Below are the six driving instruments which are illuminated only if something is not functioning correctly. In addition each instrument has a red warning light.



The principle of 'packaging' the passenger is applied in all seating. Seats are of the bucket type and in the rear compartment there are two forward facing seats and one rear facing seat. These seats provide more lateral support and a firmer mooring for seat belts than conventional bench seating. The seat belts automatically retract when released. Rear seat passengers also have a nylon harness support for the head to reduce head swing injuries. The seating generally is planned to prevent driver and passengers from striking any part of the vehicle in an accident. All internal knobs, projections and sharp edges have been reduced to a minimum.

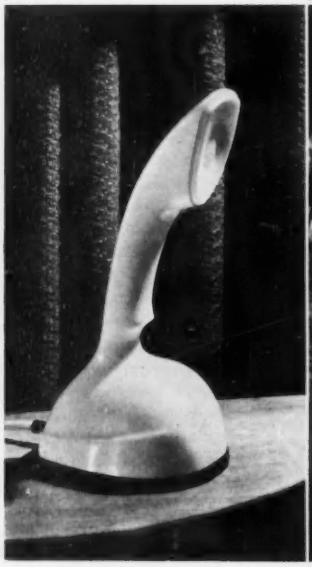
Telephones from six countries

1 Sweden The *Ericofon*, the one revolutionary departure from the traditional approach. MAKER *L. M. Ericsson.*

2 USA First produced in 1950, this instrument has had a world-wide influence on telephone design. DESIGNER *Henry Dreyfuss.* MAKER *Western Electric Company, manufacturing unit of the Bell Telephone System.*

3 USA An instrument introduced in 1954. DESIGNER *Joseph A. Hill.* MAKER *Automatic Electric Corporation.*

1 2 3 4



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JOHN GRAY

THE NEW TELEPHONE soon to be introduced by the GPO is described and illustrated on pages 38–41 of this issue. How does the design of this telephone compare with standard instruments which are in use in other countries? These illustrations show that, with the exception of the Swedish *Ericofon*, **1** (see DESIGN November 1957 pages 27–8), and a few special purpose designs, a form for the modern desk telephone has evolved which does not vary greatly from one country to another. Most American models – for instance those of the Automatic Electric Corporation, **3**, and the Leich Electric Company, **4** – bear a distinct resemblance to the well known American Bell instrument, designed by Henry Dreyfuss for the Bell Telephone System, **2**.

The new British model has several features in common with it and a new Italian instrument, **5**, has marked similarities. The square back of the handset in the Dreyfuss design is well integrated with the rounded mouthpiece and earpiece; the finger-wheel is in transparent plastics. But the cradle which is raised so that the sides need not be recessed the whole way down is not well integrated with the rest of the case. Also the rubber feet look a little clumsy.

A contribution from Iwasaki, Japan, **6**, shows a conventional development of the 'cheesedish'. Two German models are more original; Professor Walter Kersting's design, **7**, is spacious and trim and has a fully recessed dial, though it suffers from the German pre-war leaning towards long handsets, which are not favoured elsewhere. In the Siemens & Halske design, **8**, the handset is well integrated, but the sides are recessed – for no apparent reason, a practice which the firm has recently abandoned in its very simple and effective wall model, **9**. A new telephone from Russia, **10**, shows that developments there are following the Western standard.

4 USA A design for a firm which requested "a not too advanced conception". DESIGNER *Dave Chapman*. MAKER *Leich Electric Co*.

5 Italy The American influence. MAKER *Face Standard*.

6 Japan A conventional development of the 'cheesedish'. MAKER *Iwasaki*.

7 Germany A more original approach. DESIGNER *Professor Walter Kersting*. MAKER *Telephonbau und Normalzeit*.

8 and **9 Germany** Desk and wall telephones. MAKER *Siemens & Halske A/G*.

10 USSR A telephone photographed at the *Brussels International Exhibition*.

11 USA An experimental bedroom set. The dial lights when the handset is picked up. DESIGNER *Henry Dreyfuss for Bell Telephone System*.

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Denmark **Design office partnership**

1 Count Sigvard Bernadotte, left, and Acton Bjørn seen against one of the fleet of beer trucks they designed for the Tuborg Breweries, Denmark, in 1953.

EUROPE AS A WHOLE, and Scandinavia in particular, can boast a large number of professional industrial designers with an international reputation. Design organisations, in the American sense, are however a comparative rarity. Indeed Europe can produce no counterpart to Loewy, Dreyfuss or Teague, though some countries will have at least one or two firms with the technical resources to handle a wide range of industrial products.

The largest and most successful of the Scandinavian firms is the office of Count Sigvard Bernadotte and Acton Bjørn. With headquarters in Copenhagen, Bernadotte and Bjørn have carried out work for manufacturers in several countries outside Denmark. Recently they have entered a reciprocal agreement with Donald Deskey Associates, a firm of designers in New York, to represent each other in their respective countries. With designs ranging from domestic appliances to glassware and household plastics, one of their latest commissions was for a new range of furniture for the German firm, Oesede Möbel-Industrie. They are perhaps best known, however, for the work they have done on office equipment including designs for the Swedish firms AB Original Odhner and AB Åtvidabergs Industrier and for the Danish firm A/S Zeuthen & Aagaard. All their designs have a characteristically crisp and incisive treatment of form which often comes closer to American practice than to the styles which we more readily associate with Scandinavian products.

Their way of working also bears some resemblance to American methods. Bernadotte and Bjørn seldom themselves carry out detailed design work. They do however give detailed briefs to their staff and supply them with copious sketches and information, much of which is recorded on a dictaphone during or after interviews with the client. Supervision of the work is close at all stages and here Count Bernadotte plays a particularly decisive role with his advice and criticism.

Some recent examples of their designs are illustrated on these pages.

2

2 Electric water boiler. Designed 1956. MAKER *A B Elektro Helios, Sweden.*

3

3 Stainless steel kettle with hinged handle. This is a new version of a traditional Swedish coffee kettle in which the coffee is boiled with the water. Designed 1955. MAKER *A B Moderna Kök, Sweden.*

4 Hand operated adding machine. Designed 1955. MAKER *AB Original Odhner, Sweden.*

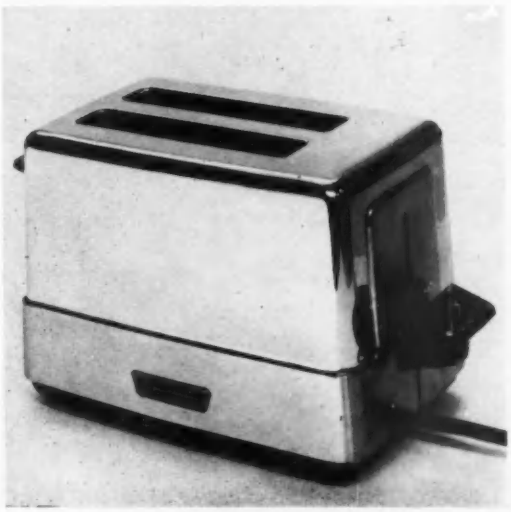
6

6 Plastics bowl. Designed 1957. MAKER *A/S N.A. Christensen & Co, Denmark.*

continued

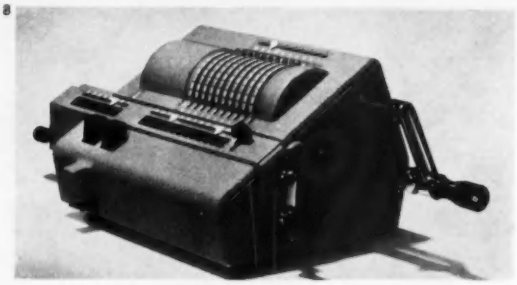
5 Standard office typewriter. This model, which took 10 years to develop, is claimed to be the lightest of its type in the world. This lightness is emphasised visually by the recessed plane of the lower half. Colour is soft grey and the name plate is placed on the back of the machine where it is more easily seen by visitors. Designed 1957. MAKER *AB Åtvidabergs Industrier, Sweden.*

7



7 Automatic electric toaster made of stainless steel with a brushed finish on the lower part contrasting with the highly polished upper section. Handles are dark blue plastics. Designed 1956. MAKER *AB Elektro Helios, Sweden.*

8



8 Calculator. This machine was redesigned, in conjunction with the manufacturer, from an earlier model that had been in production for 25 years. The die cast aluminium casing is finished in grey and the handles and keys are in dark blue plastics. Several changes in the controls have been made to increase the ease of operation. Designed 1952. MAKER *AB Original Odhner, Sweden.*

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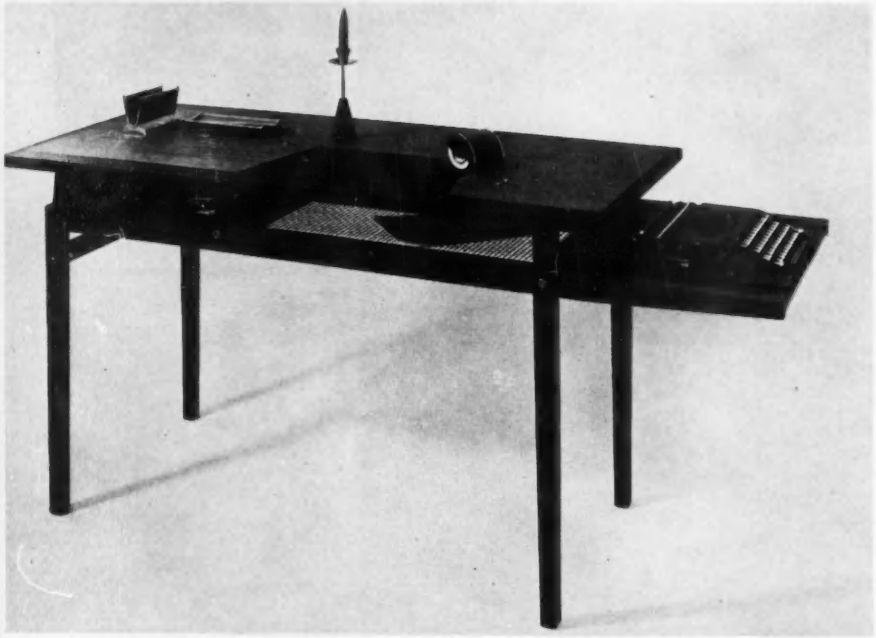
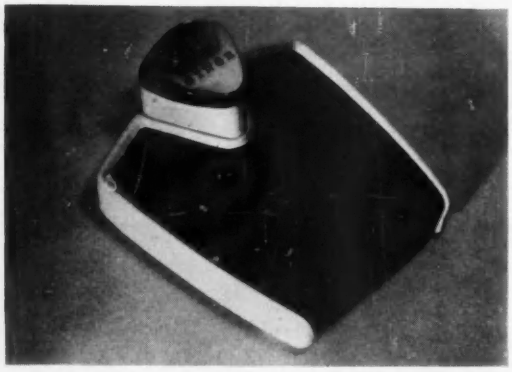


10

9 Writing desk, part of a new range designed for this firm in 1957. MAKER *Oesede Möbel-Industrie, Germany.*

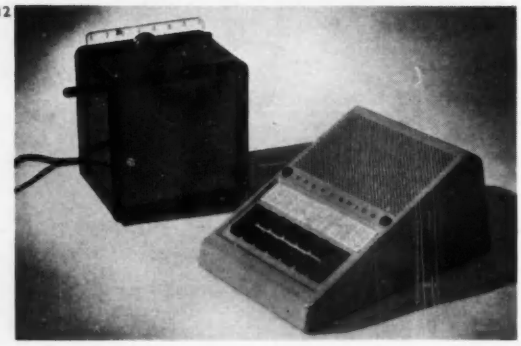
10 Fruit juice bottles with horizontal ribbing to refract the light and give an even appearance to the juice colour. Designed 1956. MAKER *AB Bjäre Industrier, Sweden.*

11



11 Bathroom weighing machine with a plastics lens and vinyl covered standing area. Designed 1955. MAKER *A/S Ginge, Denmark.*

12



12 Old and redesigned office intercommunication equipment. The new design, right, has a moulded plastics housing and more conveniently arranged keys. Redesigned 1952. MAKER *A/S Telefonico, Denmark.*

Miscellany

Printing on plastics

Recently a new plastics material called Texoprint has been introduced in the USA which has interesting possibilities for printing. It is made of strong bleached kraft fibres with synthetic Latex and fillers rolled in. This gives a sheet that handles like a limp compromise between cartridge paper and plastic curtain material, and which has a slight smell. It is available in three weights and several colours.

Texoprint can be used for printing by letterpress in line, by litho, and by silk screen. Drying is a major difficulty which necessitates special inks, and mechanical folding has its problems owing to the limpness of the material. Type and straight colours in line reproduce better than colour half-tone. A selection from the pages of a publicity book designed by Morton Goldshall Associates to show off Texoprint for the maker, Kimberley-Clark Corporation is shown BELOW.

Texoprint is washable and is therefore particularly suitable for workshop instruction sheets and games, as well as its obvious uses as covers for paper-back books, for wall charts, children's books and in situations where paper is subject to rough handling.

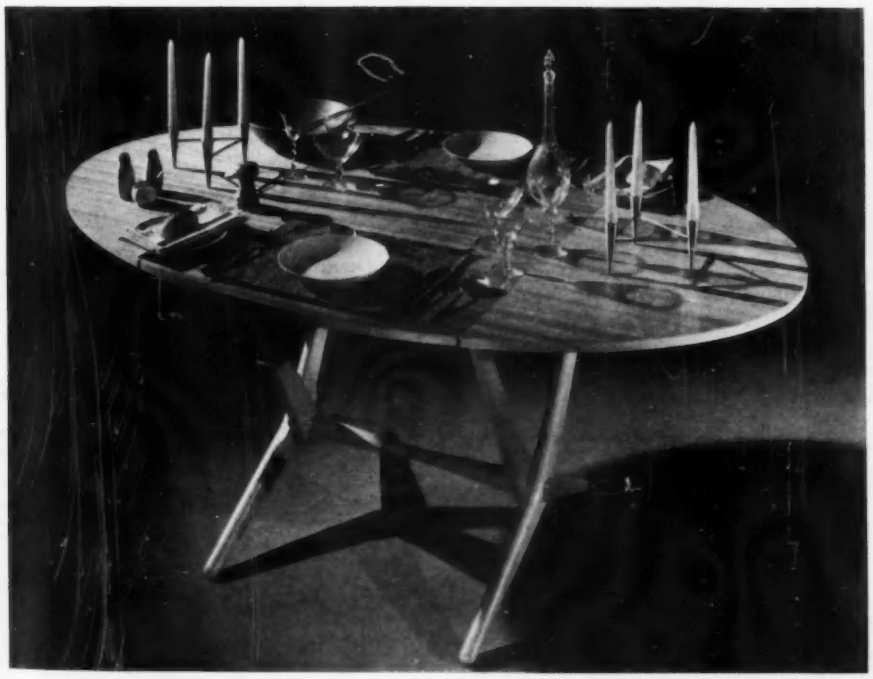
At the moment Texoprint is purchased direct from the USA but marketing in this country is being considered.

R. S. RUSSELL

Engraved plastics

Bakelite Ltd has developed a non-inflammable thermoplastic sheet called Vybak VR230 which can be engraved with standard equipment. The sheet is in the form of a sandwich with special surface layers to improve its machining characteristics and it is based upon PVC copolymer resins. It is claimed to be resistant to water, chemicals and oil, to have good dimensional stability in humid conditions and to be suitable for exterior or interior use.

Vybak VR230 is used by Post Office telephone manufacturers and tests have shown it to be suitable for use in telecommunication equipment where the temperature range is from −40°C to + 70°C.



Adjustable table

Heal & Son Ltd has introduced a variable height table, LEFT, in its latest range of new designs. The table is in teak, rosewood or mahogany veneers with legs in natural polished beech.

The height of the table can be adjusted by means of the two wooden handles, right, to 1 ft 10 inches, 2 ft 1 inch and 2 ft 4 inches from the ground, making it suitable for a number of different uses. The top measures 5 ft long by 3 ft 1 inch wide (2 ft with the leaves down). The table retails at approximately £30.

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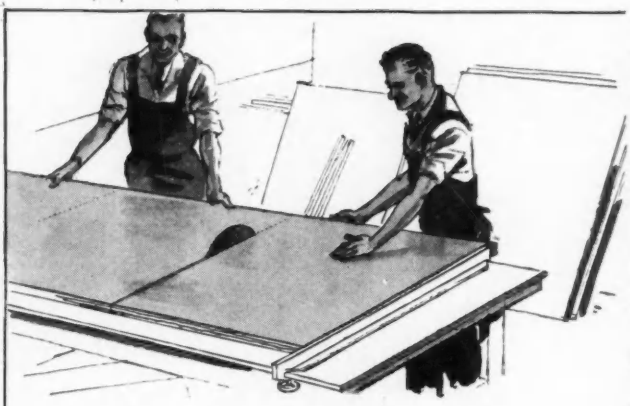
"*. . . said he'd heard* HARDEC *was Quickest Fixing Plastic Surface. Would we like to prove it on his canteen tables—100 of them —? He chose blue linen print. He could have had black cats—anything he liked— through the Hardec Design Service . . .*



"*. . . but he was in a hurry. Gave us 72 hours. So having measured up we pre-cut the* HARDEC *tops and the extruded plastic edging—very neat . . .*

"*. . . and moved in. No adhesives— we knew from experience that* HARDEC *would lie flat by itself—because it's* balanced— *and we only needed edging to secure it and finish the job . . .*

"*. . . and that was that. Point about Quickest Fixing Plastic Surface proved. Client so pleased he asked about doing the walls. Hardec, of course, is a natural for wall panelling. Couldn't be easier. So we've got three days for that too!*"

Hardec Regd. *for speed– speed for profit*

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Quotes

Meeting the challenge in Europe

Roger Falk, marketing director, Marketing Development Co Ltd, speaking at the Royal Society of Arts on Trade with Western Europe:

"Whether or not a Free Trade Area is added to an already developing Common Market – and let us be quite realistic about this – the latter will throw up, is already in fact throwing up, sizeable challenges to Britain. There are already stark and revealing examples to be seen of German aggressiveness and invention in selling to such discriminating markets as Sweden, Belgium and Holland, and this is but one example . . .

"I am not for a moment suggesting that market research can supply all the answers or that fact-finding is in any way a substitute for hard selling. What I am saying, however, is that we can never hope to compete in more than a few isolated instances until we subject our European selling methods to the same kind of vigorous, critical examination with which we sell to our own domestic market. Lack of interest has, it has been truly said, undermined British competitiveness in Europe and yet, paradoxically, I am convinced that there is still a real wish in the minds of many Continental importers to buy our goods.

"One clear instance of this inability to measure up to the challenge is the perennial problem of representation in European markets. Products that are often widely advertised and well displayed need to be backed by a representation that is single-minded. Too often one has seen a trading failure result from the appointment of an agent who is either too small to do justice to the range or too large to be able to give a consistent degree of attention to it. It just cannot any longer be argued that the European customer must put up with what the British exporter thinks is best for him; appalling errors of judgment and dramatic opportunities lost are the result of an almost bland disregard of the varying requirements of differing markets."

American design on the upgrade

George Katona writing on The integrated approach to product planning, *in* Marketing Series No 101, *New York:*

"Consumers want newer, better, and more durable goods and are not satisfied with what they have, even though what they have is satisfactory from the point of view of technological efficiency. This process of upgrading has been going on now for several years, and there are no signs that it has ended. It is a function of the underlying security, confidence, and optimism of the people. The problem is not: Do we need more things? The answer to this question is clear. Rather, the problem is: When do we transform our needs into demand? The American people are in a position to postpone satisfying their needs; they have not done so, but may do so in the future, if their feeling of confidence and satisfaction does not persist."

Depression accents durability

Lazette Van Houten DESIGN'S *American correspondent discusses the points raised by George Katona:*

"Americans have long been known for their desire to throw out used equipment, whether it is serviceable or not and to replace it with the newest model. These new models may offer little beyond fancier forms, greater gadgetry and classier colours, but they are desirable because they are the 'latest'.

"This desire for upgrading has become the most potent factor in the dynamic development of American consumer technocracy. It accounts for much of the styling of our products for everyday living. It has been encouraged in some industries, notably the automobile and fashion industries, by deliberate fostering of artificial obsolescence. Though in great measure the basic equipment needs of the mass of the consuming public have been met, this American national habit has up until fairly recently kept the automobile, major appliance and television factories humming. Other industries, furniture for instance, have tried and are trying to take advantage of this national characteristic by stressing yearly a new fashion angle in order to shorten the renewal cycle of their product.

"This is the pattern at least when the climate is cheery. For contrary to what one might expect, Americans go into debt when the horizon looks rosy. At such times, filled with confidence, buoyed up by a feeling of security (high wages and expectations that wages will continue to soar faster than living costs) Americans use the instalment plan for all it is worth.

"There are now indications that the American people are less sure than some months ago that there is justification for continuing this pattern.

"The launching of the Russian sputniks, while it jarred American pride and heightened doubts about our current foreign policy, does not account for the present recessive movement of the sales barometer. Americans are uneasy about the uncomfortable trends in the domestic area under the present leadership – growing unemployment, accumulating inventories, reduced production in basic industries such as steel, aluminium, automotive, etc. That these events occur simultaneously with rising prices and living costs is unusual and unsettling.

"It is under such conditions that Americans hang on to the old television set and last year's automobile. It is events at home rather than those abroad, no matter how jolting, that affect American confidence and slacken consumer buying.

"Should this trend continue for any extended period it will have great influence on consumer goods styling. Obsolesence due to styling cannot be a potent factor under such conditions. Price consideration will be paramount.

"At the recent home furniture markets in Chicago this move on the part of manufacturers was not yet apparent. Style and fashion were still the big points in the sales talks.

"Such efforts to sustain maximum consumption of consumer goods are a necessity in a country whose economy is based on maximum production. Our production capacity is so high that ways must be found to utilise it if we are to continue economically sound."

Back to fundamentals

Alex. E. Javitz, special features editor, Electrical Manufacturing, *U S A, writing in that magazine's May editorial:*

"The American has been accused of being a gadget-worshipper. True enough, he is struck by the novel and intrigued by the clever. But the true genius of the American is far less rooted in the gadget than it is in the simple and straightforward device or machine. We have a long and honourable history that goes back to the clean design of home made tools, appliances and weapons of our frontier days. These may have been rough-hewn and homely but, in the main, they were free of superfluities and excrescences.

"We have just passed through a 'gilded era' of product design. How much of the current stagnation in consumer buying is a latent sign of a buyers' revolt against supergadgetry and gaudiness is a reasonably cogent question. Dollars are fewer and buying is selective. Such things as gold-plated casters on vacuum cleaners, built-in file systems for freezers, multi-hinged refrigerator doors, ranges and clothes' washers with control panels that would befuddle an aircraft pilot, begin to pall. The homely virtues of good and just design begin to dominate the consumer's buying instincts and motivate his buying decisions.

"We may have been going through a period of design self-delusion. Complexity in design is not *per se* good design. All too often, the contrary may be true. In fact, design complexity may be symptomatic, at the least, of lazy design; and, at the worst, of downright poor design. It has been said frequently that it takes longer to write a short letter or editorial than a long one; by analogy, it may take longer to design a product with the optimum attributes of simplicity than one encumbered with unnecessary so-called 'features'.

"Granted, we live in a world of missiles, space satellites, and miracle devices of all kinds. Whether all these advances in science and engineering make this world the best of all possible worlds for mankind, is perhaps debatable. But on the grassroots level of products for the home, the office and the shop, we may do well by going back to our heritage of simple and straightforward design. What the consumer wants is this: reliable performance; simple and safe operation; ease in maintenance and servicing; lower price by elimination of wasteful production and distribution costs.

"The lush designs of the automobile industry have already been challenged by the consumer. The popularity of the simple, foreign car is clear evidence that the consumer has become disenchanted with the overstuffed, overlong, accessory-laden American car. As this editorial is being written, a survey report issued by the General Federation of Women's Clubs indicates that the club members show a widespread resentment "against gadgets, the need to enlarge garages, the difficulty in parking, inflationary prices and poor workmanship at both factory and service-station levels". The same facts of life apply to other product areas as well.

"Let us get back to the fundamentals of simple, straightforward design for our appliances and other products we need in day-to-day living. Let us leave the complexities to the scientists at Cape Canaveral!"

Official guilt?

Sir Herbert Read writing on What's wrong with our taste and design? *in the May issue of* Impulse:

"I have blamed the public and I have blamed the manufacturer, but they are not the only people in my pillory. My utmost contempt is reserved for a representative of our educated classes – I cannot name him because he has no face; he is an anonymous member of the Establishment, a figure composite of the Minister of Education, the President of the Royal Academy, the Editor of *The Times*, and perhaps the Archbishop of Canterbury. He decides what is 'done', what is 'worn', what is 'upper', what is 'highbrow' (in the pejorative sense). I imagine him rather like one of the sinister figures in Francis Bacon's paintings. It is 'he', I suppose, who decides that the Queen's portrait should be painted by Annigoni rather than by Lucien Freud or Bryan Kneale. It is 'he' who chooses the architect to design the new Air Ministry building in Whitehall, a vast dull block of offices looming over the exquisite Banqueting Hall. It is 'he' who has decided that royalism and whimsicality are the themes of the British Government pavilion at the Brussels International Exhibition; it is 'he' who determines that the Royal College of Art should pursue an ideal of band-box elegance instead of getting down to the serious business of industrial design. The continued existence of an institution like the Royal Academy, when we do not possess in this country one single school wholly devoted to the fundamental design problems of our civilisation, is a symbol of our incapacity to cope with the creeping paralysis of our decadence. One tries to maintain one's equanimity in this situation, but the systematic abasement of taste has been carried to such depths that for my part I have little feeling left but despair. There is nothing to do but sit back and wait for the design to end all designs; the giant mushroom of smoke that will rise when the Bomb falls."

London County Council

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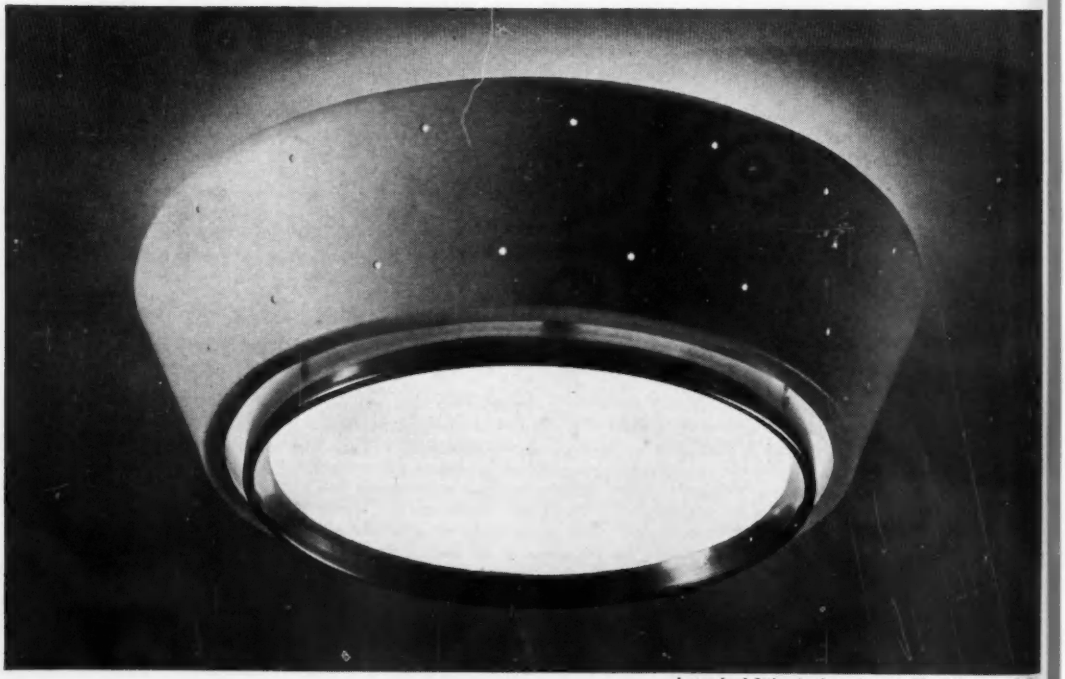

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NEWS

PEOPLE

The end is people

Charles Eames and his wife, Ray, recently paid a short visit to this country en route to America from a mission to India to advise on the organisation of design education there. In spite of the fact that Eames is perhaps the best known and in some ways the most influential designer of recent years he tends to be thought of, particularly in this country it seems, as something of a mixed blessing. If he stuck to designing chairs everything would be all right, but because he ranges in an apparently relaxed way from architecture to films, some of them for Hollywood, one could be led to believe (mistakenly) that he was merely a technological-age dilettante.

There must be a great many people whose *House of Cards* has long since been thumbed into nothing, who are unaware of its designer's other accomplishments, like the *Georgia Experiment*, or his film the *Communications Primer*. There must be a great many more who enjoyed the remarkable aeroplane building sequence and the air circus sequence which he planned and directed in the film *The Spirit of St Louis*, without knowing anything about the *House of Cards*, glass fibre chairs or even Eames' name.

All these activities could, of course, easily add up to not very much more than inspired dilettantism, but in Eames' case they do not, mainly, because implicit in all his work is an appreciation of the fact that any design process, whether it is furniture or films or toys, ultimately leads to people.

It has been said that the key to Eames' world is his toys. While this statement comes very near to the truth it could be misleading if the toys were taken at face value, or their intention misunderstood. Some time ago Reyner Banham wrote that the *House of Cards* consisted of "elemental manipulative modular components with a six-way connectivity option and a maximal permissive symbol making capacity". This was a witty and perceptive way of drawing attention to the main characteristics behind all of Eames' work. These characteristics, are, briefly, a concern for planning and logical methods, a consideration of the human element, ie the fact that no design is ever complete until it is part of some particular environment, and a pre-occupation with forms that are something other than merely refined shapes. These considerations are not only apparent in Eames' work but implicit in his conversation, which is not unlike that of a 'method' actor studying for the part of an eminent designer.

Eames' position in the design world at the present time may turn out to be a particularly significant one. In his work the two almost mutually exclusive approaches that exist today – the logical, through information theory, and the intuitive, are brought together. His overall method is logical, but the logic of some situations contains or takes account of the illogical. Along with, for instance, ergonomic or human engineering data the non-logical needs of the consumer are built into the initial concept. He may not know, as he said once, what a design will eventually look like, but he does know what it must do. It is not, apparently, an uncommon experience for visitors to the Eames household to find themselves cast in plaster jackets in an optimum seating position; not only are people at the end of his process, they are sometimes at the beginning of it too.

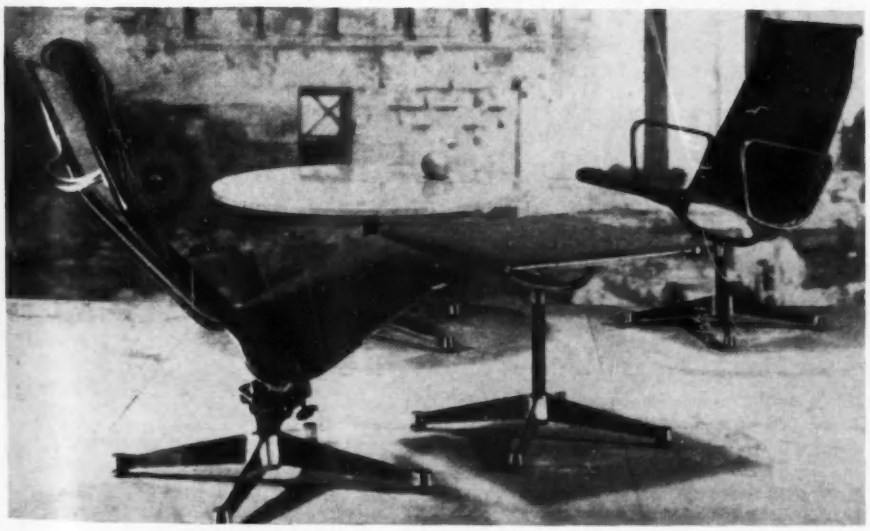
It was precisely on the 'human' score that Eames had some criticisms of the *Designs of the Year*. He said that he found it difficult to imagine for whom they were intended, and wondered what effect they would have on the people who owned them. It was as if they were designed in a vacuum for other designers and people with a knowledge of the business of design rather than for the public at large. One design in particular, he thought, was carried out without any indication that the designer had any affection for the task.

Sam Lambert

Charles Eames during his recent visit to this country.

The Eames leisure group

The illustration shows a group from the new range of Leisure *chairs and tables that Charles Eames and his assistants have recently designed; they are to be manufactured in the USA by the Herman Miller Furniture Co. The frames of both tables and chairs are in polished cast aluminium; the table tops are in marble, slate or glass. Photograph by kind permission of* Interiors.



Arabia in the Haymarket

Gunnar Ståhle, managing director of the Arabia pottery in Finland, came to The Design Centre during a recent visit to this country. Mr Ståhle was particularly interested in the ceramic sanitary ware on show. He described the work of his own firm in this field. A new wash basin and a urinal are now in production which have been designed by a sculptor working for the first time in this material. Arabia has developed a new type of wall fixing for the washbasin. The supports are completely concealed and at the same time are claimed to be much stronger than the conventional bracket supports.

Gunnar Ståhle

New RIBA president

This month Basil Spence succeeds Kenneth M. B. Cross as president of the RIBA. Mr Spence studied at the architectural schools of Edinburgh and London University. In 1932 he won the Arthur Cates Prize tying with Robert H. Matthew (now professor of Architecture at the Edinburgh School of Architecture) and spent a year in the office of Sir Edwin Lutyens assisting in the preparation of drawings for the Viceroy's house at Delhi. In 1947 Mr Spence became a Fellow of the RIBA. He acted as adviser to the Board of Trade for the *British Industries Fair* in 1947, 1948 and 1949. In 1951 he won the competition for the new

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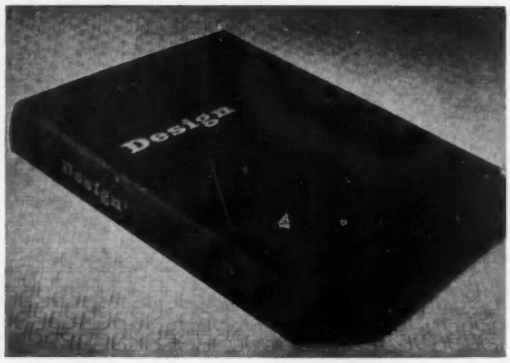

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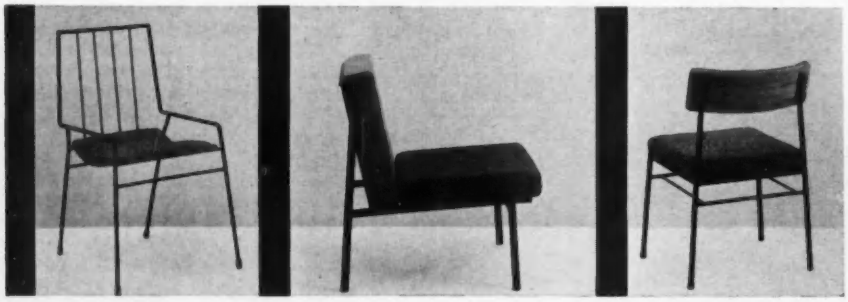

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NEWS

Coventry Cathedral and the same year he received the Festival of Britain Award by the Council for Architecture, Town Planning and Building Research for his housing estate at Sunbury-on-Thames. In 1952 he received the Saltire Society's Award for his design for fishermen's houses at Dunbar in East Lothian.

New head of design training

Leslie Roberts, now in charge of the industrial design section at the General Electric Company Ltd, has been appointed head of the department of design at Hornsey College of Art and Crafts. In addition to his duties at the college, which are to begin in September, Mr Roberts intends to carry out free lance work.

Leslie Roberts

CoID Scottish committee

Donald Dow was recently appointed a member of the CoID Scottish Committee. Mr Dow is President of the Scottish Co-operative Wholesale Society Ltd.

Scottish member honoured

Thomas Coughtrie, chairman, Belmos Co Ltd, and member of the CoID Scottish Committee, was appointed CBE in the recent Birthday Honours list.

EXHIBITIONS

Ad men in embryo

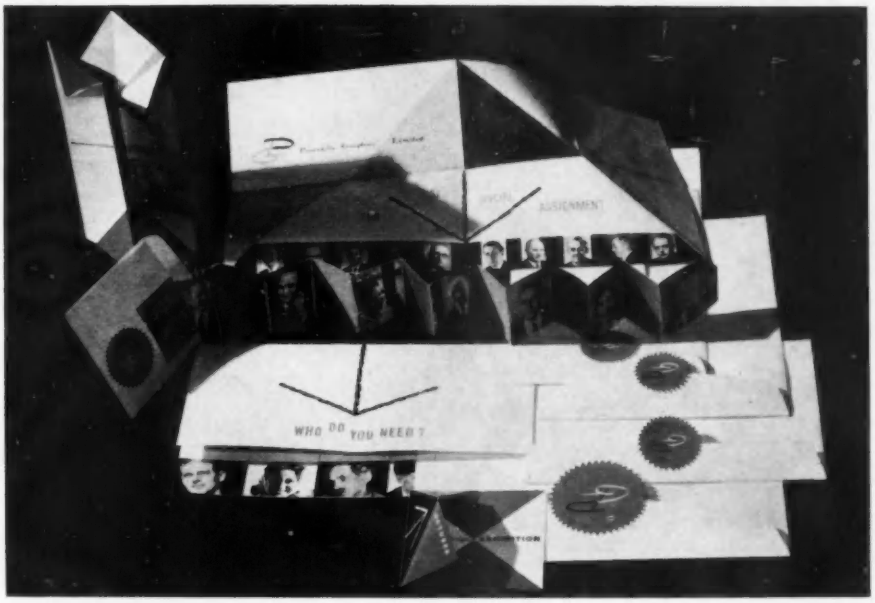
Recently an exhibition of work by students of the School of Advertising Design of the Regional College of Art, Manchester, was shown at the headquarters of the Institute of Practitioners in Advertising.

When John Holden was appointed principal of the Regional College of Art, Manchester, four years ago, there was no school of commercial design at the college. He sought advice from advertising agencies in Manchester and decided to establish courses in advertising design. Ray Howorth was appointed head of the school with a new staff of assistants, many of them drawn from advertising agencies and related industries. With this teaching strength, Mr Holden claims, the department got off to a good start attracting some of the best talent among the new students.

The students, chiefly from secondary schools, enter the course between the ages of 16 and 17. Instruction is given on basic design problems, divorced in the early stages from the manual skills of drawing and technique, which are taught separately, and it is not until the end of the first year that drawing, technique and design come together in the solution of simple advertising problems. At the beginning of the second year serious attention is paid to the media in which they will ultimately work. Students progress from individual advertising problems to advertising schemes and the year concludes with a group exercise in which first and second year students combine to produce an advertising campaign. The illustration, above, shows such a campaign for an imaginary advertising agency – Piccadilly Graphics. In the third year more attention is paid to the preparation of finished art work and print. The school has its own typography section and can also draw upon more extensive resources by the co-operation of the printing department of the Manchester College of Technology.

Work in the final stages leads to the NDD examination in commercial design. Throughout the course there are opportunities for liberal studies including English, philosophy and history of art. Travel at home and abroad is encouraged through scholarships, but to further the immediate work in hand there are opportunities to visit firms and frequently talks are given by practising designers. The current climate in advertising agencies is brought home to the students as much as possible.

As a condition of their appointment all staff in this department must continue free lance activities. As the course has been running for only three years the output is not yet considerable but there are now upwards of 70 full-time students in the department.



Imaginary agency

This selection of promotional material for an imaginary design studio called 'Piccadilly Graphics Ltd' was part of an exhibition seen in London recently showing the work of students of the School of Advertising Design at the Regional College of Art, Manchester (see Ad men in embryo). *It represents a combined first and second year, three-week project. The school has been in existence for four years and its head is Ray Howorth.*

those students who are successful in the final grade qualifying for associateship of the institute.

The standard of work, it must be confessed, was certainly not high, particularly when original creative design was being attempted. Here and there some quite charming drawings of decorative detail, such as the orders of architecture, appeared, but little of the original design showed evidence of much practice in the planning and working out of ideas.

Naturally one expects students to be weak on the application of the knowledge they acquire, but one wonders if the syllabus prepared by the institute does

continued on page 71

A perspective design for a cinema restaurant, one of the drawings shown in the Incorporated Institute of British Decorators and Interior Designers' exhibition recently (see Out of touch).

Out of touch

The Incorporated Institute of British Decorators and Interior Designers recently held an exhibition of students' work in the intermediate and final grades,

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not hopelessly overload him with information he can hardly expect to remember and will rarely if ever use. For example, a quite exhaustive syllabus is prepared in the intermediate grade for heraldry, which forms part of a compulsory paper.

One would wish that this presumably influential body would develop a more forward looking policy by encouraging its students to understand what is being done *today*, and that this is every bit as exciting as anything which has been done in the past.

ROBERT WETMORE

Integration

Hull Traders Ltd, recently held an exhibition called *Time Present Interiors* at its new showrooms at 7 Sedley Place, Oxford Street, W1. The exhibition suggested the relationship between designers, craftsmen, decorators, and architects in interior design and showed work by Eduardo Paolozzi, Nigel Henderson, Peter Collingwood, David Pye, Nicholas Vergette, Jack Stafford, and John Drummond.

The showroom of Stafford Furniture Ltd is now also located at 7 Sedley Place.

Scotland's ideal homes

Four specially designed furnished rooms comprised the *Good Furnishing* display at *Scotland's Own Ideal Home Exhibition* in Edinburgh recently. Their design was carried out by Mary Tindall in association with the CoID Scottish Committee, the furniture and furnishings being supplied by four Edinburgh retailers – C. & J. Brown of Newington Ltd, Grants of North Bridge, Edinburgh, Martin & Son, Edinburgh Ltd, and Findlater Smith Ltd. The Scottish Committee prepared this feature at the invitation of the exhibition organiser, Herbert Daniel Exhibitions Ltd.

COMPETITIONS

Awards for moulding

ICI has recently announced the first Alkathene design competition. Awards of a trophy to the moulder and £50 to the designer are offered for a retail product moulded in Alkathene and not marketed before January 1958. The judges – Paul Reilly, deputy director CoID, R. W. Luckhurst, secretary RSA, and a representative of the design committees of the Plastics Institute under the chairmanship of J. V. Crossley, director of ICI plastics division, will assess the entries on the points of servicability, aesthetics, and suitability of moulding in Alkathene. Closing date October 31. Details from Publicity Department, ICI Ltd, Plastics Division, Black Fan Road, Welwyn Garden City, Herts.

Plastics prize

A prize of 30 gns is being offered as the Worshipful Company of Horner's Award, 1958. The competition, which is organised by the British Plastics Federation, is open to designers in Great Britain under 30 for the design of an article in plastics. Closing date September 30. Details from British Plastics Federation, 47 Piccadilly, W1.

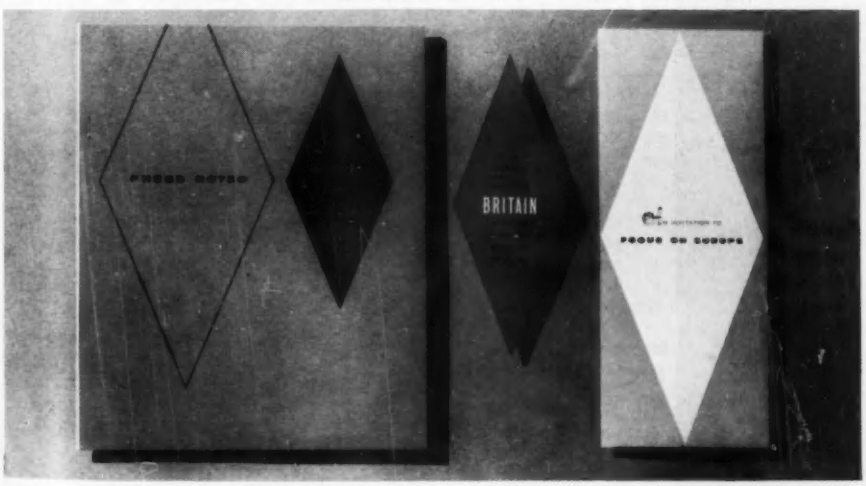
MISCELLANEOUS

Adventure in Knightsbridge

Woollands of Knightsbridge recently commenced an extensive programme described as "an adventure in merchandising" consisting of a series of displays, exhibitions and fashion parades to show goods from 13 European countries including Great Britain. Called *Focus on Europe* the campaign was particularly to be applauded in bringing together many designs for tableware, furniture and other consumer goods from the Continent that had not previously been seen in this country. As usual at Woollands the selection of items was impeccable and in drawing attention to the high standards of design and quality to be found among many Continental manufacturers, the directors of this store have done much to ensure that British firms will not enter the proposed European Free Trade Area without being aware of the competition they will have to face. Sir Gordon Russell, opening the programme, spoke emphatically on this point. "It is indeed encouraging to me", he said, "to have the support in this matter of one of the most enterprising retailers in London. For I cannot help feeling that, if the Free Trade Area comes into being, as I believe it will . . . it will bring a chilling wind round the ears of those manufacturers whose design standards are so low that they will not be competitive in the quality end of the market."

Not least of the factors which contributed to the success of this project was the co-ordinated presentation designed by Peter Hatch, who until recently was in charge of graphic design and production at the CoID. A selection of the labels, packaging and promotion material specially prepared by Mr Hatch for *Focus on Europe* is illustrated BELOW LEFT. Although the exhibition is now closed, many of the goods shown may still be seen in the various retail departments of the store.

Some of the Woolland's promotion material designed by Peter Hatch (*see* Adventure in Knightsbridge).



Built-in sign

The façade of the new headquarters building of J. H. Sankey & Son Ltd, Barking, shows the integration of an illuminated sign in a curtain wall. The sign was made by Claude-General Neon Lights Ltd and designed by the architects, Tingey Associates.

Pomp in the circumstances

The dining room and lounge at the Caledonian hotel, Edinburgh, have been recently redesigned by Robert and Roger Nicholson, consultant designers for the work to the British Transport Hotels. This is the first stage in an extensive redesign programme for the Caledonian, and the Nicholson brothers are now working on new treatments for the entrance hall and staircase.

The special Hotels issue of DESIGN published in January discussed some of the problems that exist in converting or redecorating the big Victorian hotels of this type that were built in the great period of railway expansion. In many of these hotels which lack character and are too inconvenient to run economically under modern conditions, only a drastic conversion of the interiors, with false ceilings and partitions, is likely to provide a satisfactory return on investment. However, in the Caledonian the designers have accepted the existing structure (removing a false ceiling which dated from the 'thirties) and they have sought ways to express the original character in a new decorative scheme.

Little appears to have been spared in recreating the type of rich and sumptuous environment that originally existed in some hotels of this period. Decoration does

continued on page 73

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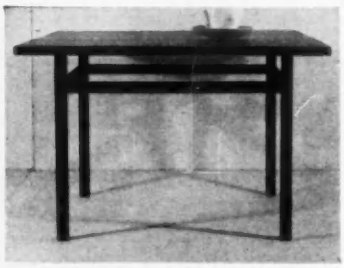

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not stop with the *trompe d'oeil* murals 230 ft × 20 ft (painted by Roger Nicholson, Jehan Dahly and Gordon Davies), and with the intricate carpet, but is continued in decorative motifs within the original wall panels. The specially designed chandeliers are a bold and, on the whole, successful attempt to regain the quality of elegance in light fittings for a large and high room of this character. The whole effect will surprise many people who have come to divide interior design today into two rigid compartments – modern or traditional – and who, in the former, expect only the most hesitant approach to any kind of decoration. The atmosphere here, however, is gay and colourful and we should congratulate the British Transport Hotels for having the wisdom to commission such experienced and sensitive designers for this job where others might well have failed. A.M.

International council

The International Council of Societies of Industrial Designers or ICSID (DESIGN September 1957 page 15) of which the CoID is an associate member, will hold its first full assembly in Copenhagen next year. In the meantime, in addition to preparations for the Copenhagen meeting, the ICSID's activities include an international survey of educational programmes and curricula and the training of industrial designers in member countries. The president of ICSID is Peter Muller-Munk, of USA, the vice president, Misha Black, and the secretary-treasurer, Pierre Vago of France.

Light engineering and design

Recently at a lively one-day conference in Bristol, organised by the Regional Council for Further Education for the South West, over 60 representatives of engineering firms, trade associations, art colleges and professional designers met to discuss the problems of appearance design of light engineering products.

The programme was arranged so that the members of the conference could hear four points of view – the sales manager's put by W. A. Cuthbertson of British Olivetti Ltd, the industrial designer's by H. A. Nieboer, management's by Leslie Julius of S. Hille & Co Ltd and the teacher's by L. Bruce Archer of the LCC Central School of Arts and Crafts. Paul Reilly, deputy director, CoID was in the chair.

There was naturally a high degree of unanimity on the platform about the importance of the designer's role in the light engineering industries, but this was well reflected by the audience, the problem seeming to be no longer whether good design is important but how it can be achieved.

The absence of representatives from technical schools and colleges was regrettable in view of the importance of building bridges between art and technical education. The case histories of successful product designs and of convinced design policies at management level described by the speakers gave the conference a realistic basis, as did its co-sponsorship by the Federation of British Industries and the Bristol and West of England Engineering Manufacturers' Association.

Scottish Design Centre

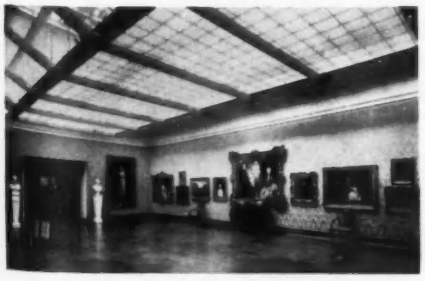
In future the premises of the Scottish Committee of the CoID at 46 West George Street, Glasgow, will be known as the Scottish Design Centre. This does not mean that there will be any major changes in the way the Scottish Committee operates. It still plans to hold three major exhibitions each year and Scottish firms requiring advice on the employment of designers should make their enquiries to Glasgow.

Fellowships in Birmingham

The Wilmot Breeden group of companies is sponsoring two fellowships, each worth £1,000 a year, one at the University of Birmingham, and the other at the Birmingham College of Technology. Candidates should have had two or three years' research or industrial experience and must submit an 'enterprise' on either scientific research, design, development, or an enquiry into industrial processes or operational research, requiring the services both of the company and the university. Applications to the secretary, Wilmot Breeden (Holdings) Ltd, Amington Road, Birmingham.

Building research for exhibition

This illustration shows one of the six restored Feeney galleries in the City of Birmingham Museum and Art Gallery. The restoration of the galleries, which were destroyed by bombing in 1940, *has been carried out by A. G. Sheppard Fidler, the city architect, and includes new systems of lighting based upon information supplied by the Building Research Station.*

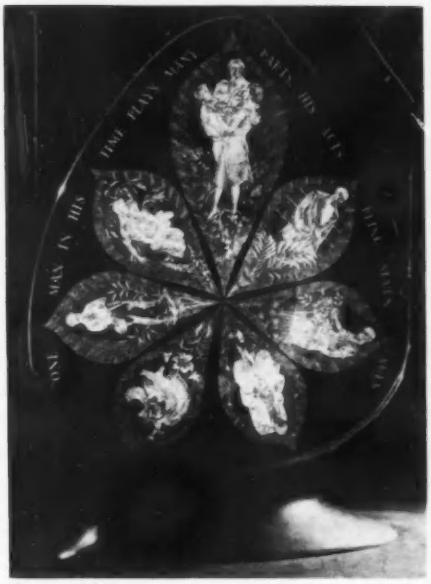


LETTERS *to the Editor*

Training the draughtsman

SIR: The article *Training product designers* (DESIGN April pages 27–41) devotes considerable space to what is being done to train industrial designers in art colleges which have an annual output of a few dozen designers per year. The value of this training is not in question, but the emphasis on the professional designer compared with what should be done for the specialist engineer and draughtsmen who have to carry out the design work – a few lines in the penultimate paragraph – seems to me to run the risk of creating a false sense of values.

I admit that I write from experience of heavy electrical engineering and not of household products, to which the article specifically refers. The influence the professional designer can exert on household products is more direct than that possible with more complicated engineering equipment, but even so I believe the basic necessity is to train engineering and drawing office staffs to have a proper realisation of design principles and ergonomic requirements.



House prize

This trophy in bronze and glass engraved by Anthony Pope, is to be awarded by Shell-Mex and BP Ltd for the best house story of the year in the National House Journal competition organised by the British Association of Industrial Editors. The judges for the trophy for 1958 *are Trevor Evans, industrial correspondent of the* Daily Express, *Margaret Stewart, industrial correspondent of the* News Chronicle, *and M. J. Thomas, labour reporter of* The Times.

In heavy engineering the industrial consultant can be a very important member of the development team, but his most effective work is possibly in influencing and inspiring the specialist engineers and draughtsmen, ie a form of training. To a lesser extent this may also be true in the design of lighter equipment, unless we confine our view to design teams so small and with such limited technical content in their product that the industrial designer can combine in himself all the design functions required.

I therefore put forward a plea for more support for spreading industrial design techniques among a wider group by the addition of this subject to the syllabus available to engineering students taking Ordinary National, Higher National and degree examinations. Admittedly, industrial design could only take a minor position in an already crowded curriculum, but if recognised as an extra subject and supported by future employers useful results would be achieved.

Through the initiative of a sub-committee of the North Western Regional Advisory Council for Further Education, a syllabus for industrial design work was drawn up based on interviews with representatives from industry. This in substance has been accepted by the Institution of Mechanical Engineers as a subject suitable for endorsement on Ordinary National Certificates. This is a beginning, and I believe co-ordinated training between local engineering and art

continued on page 75

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Does not mean old fashioned ideas and the slavish copying of the past. We illustrate one of the offices in the recently completed **WOOD GREEN CIVIC CENTRE,** Architects, Sir John Brown, A. E. Henson and Partners, to prove our point. In contrast we were also responsible for the manufacture of the Pulpit, Altar Rails, Choir Stalls, Bishops' Thrones and the Stairs to the Organ Gallery in the beautiful Wren Church of **ST. LAWRENCE-JEWRY-NEXT-GUILDHALL,** recently rehabilitated under the direction of Cecil Brown, Esq., L.R.I.B.A.

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Record of Designers

COUNCIL OF INDUSTRIAL DESIGN 28 Haymarket, London SW1

SCOTTISH COMMITTEE OF THE COUNCIL 46 West George Street, Glasgow C2

LETTERS

colleges could be of value in furthering this educational objective.

Some of the larger engineering companies endeavour to train their own engineering staffs by means of industrial design courses run by their own specialist designers in addition to the influence brought to bear by external consultants, but this is operating in a restricted field and to a limited extent. It would be valuable to the whole engineering industry if your influence were used to encourage not only training for industrial designers, but also for the wider field of engineers and draughtsmen to which you referred in your *Comment* on page 25.

C. H. FLURSCHEIM
Director and Chief Electrical Engineer
Metropolitan-Vickers Electrical Co Ltd
Manchester 17

Kitchens: easy does it

SIR: I have read with interest your article *Kitchens: co-ordination needed* (DESIGN March pages 43–7) and have studied the two kitchen plans prepared by Ursula Bowyer and Jo Pattrick for display in The Design Centre.

I am not quite clear as to what principles were laid down by the Council of Scientific Management. You state that both Mrs Bowyer and Mrs Pattrick found that a custom-built kitchen would have provided a more satisfactory solution to their problems. Why therefore did they not use them? In your opening paragraph you state "The ideal kitchen in this country at least is still more or less an architect's and planner's dream, than an achievable reality". Does this rule out the use of custom-built kitchens and if so, why?

Incidentally if architects and planners wish to adhere rigidly to the BS they can stop dreaming about ideal kitchens for ever. Unfortunately your readers and visitors to the exhibition must form the impression that Britain or perhaps only England and Wales cannot do better. For some uncertain reason the appreciation of American type built-in kitchens has been relatively very much greater in Scotland than in England and Wales.

Assuming custom-built kitchens were ruled out, the numerous gaps, open holes and uneven surfaces noticeable in both the exhibition kitchens, clearly demonstrate the difficulties with which your planners were faced and I feel sure that more than one manufacturer of custom-built kitchens in this country could do very much better.

Such features as built-in refrigerators, clothes and dishwashers have been provided by Ezee Kitchens Ltd for the last four to 12 years, as well as American-type large removable cup strainers in sink wastes and flush fitting swivel mixers. Some of these features have been standard in the USA for the last 20 years and common in Scotland for the last 10–12 years but are only now being sparingly adopted by a few English manufacturers.

If Mrs Bowyer and Mrs Pattrick had elected or been permitted to use Scottish steel kitchen units, the dishwashers, refrigerators and cookers could all have fitted flush. The garbage can could have been self-opening, concealed inside the sink unit, extraction fans could have been concealed, and wall cabinets need not have been placed out of reach. I would also make the following criticism of their kitchens.

In the luxury kitchen:

1 The advantage of placing the two kitchen sinks and the dishwashers so far apart seems obscure, and very expensive as regards plumbing.
2 A window behind a cooker is very hard to keep clean, and the splash back of the cooker extends well above the sill.
3 Wall cabinets across a window is a novel idea and I would anticipate difficulties at night with blinds or curtains. Also the external appearance might not be too good.
4 By keeping counter units well clear of the floor, bending down is reduced, but likewise, alternative storage space, and more walking about is necessary. There is also much more rather awkward floor space to clean.
5 I would prefer a wash tub to the small round sink.
6 Saucepan storage will be very limited, especially if floor units are only 21 inches deep. The American 24-inch depth is better for this purpose.
7 Extraction fans in window panes may be necessary in old houses, but should be concealed in an ideal kitchen.

In the middle income kitchen:

1 Recess for garbage can forms a dirt hole and this item should be in the sink cabinet.
2 Cooker and refrigerator are a bad fit.
3 Top wall cabinets are too inaccessible. Taller single door cabinets would be better.
4 The free-standing crockery cupboard (L on the plan) seems unnecessary in view of ample space for wall cupboards.

I appreciate that tastes and personal requirements differ vastly, and your article combined with the exhibition should do much to stimulate thought on kitchen planning so badly needed in this country.

J. M. COLVILLE
Managing Director
Ezee Kitchens Ltd
341 Sauchiehall Street
Glasgow C2

Kitchens: practical joy

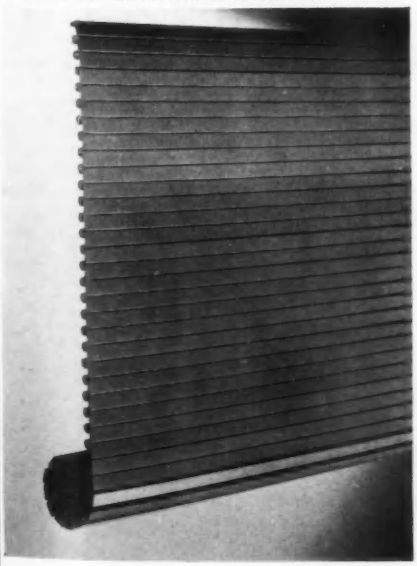
SIR: I was very interested to read the two articles on kitchen design in the March issue, particularly since I have for the past four months been the fortunate user of an American kitchen and have come to realise how primitive most British manufacturers' efforts are in comparison.

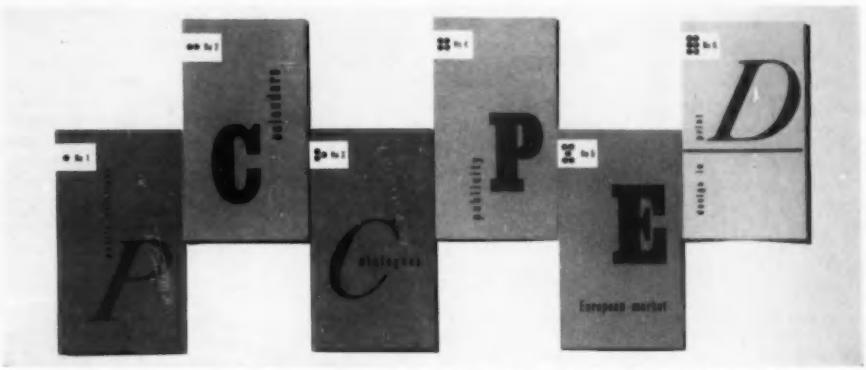
I should emphasise that this is no super-special Hollywood affair, but an ordinary kitchen in inexpensively furnished housing provided for rent to graduate students and faculty members at a large Mid-Western University. The fact that such luxurious equipment – by English standards – can be provided cheaply is due, not so much to the larger mass market

continued on page 77

Shuttered

British Moulded Plastics Ltd has recently introduced this plastics roller shuttering made up from sections of rigid PVC which button on to one another. A channel, not shown here, is available in which the shuttering runs. The sections are available in various colours.





Direct mail

Drew and Hopwood Ltd has recently begun to circulate these direct mail folders, which deal with a different aspect of its work as printers, to friends and prospective customers. They were designed by the firm's studio which has been established now for three years.

Industrial designers and Vietum

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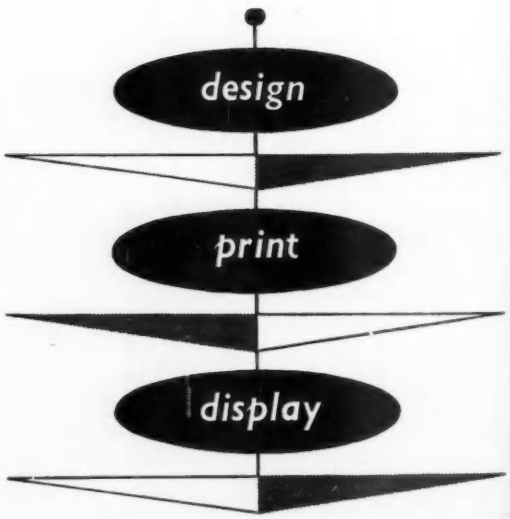

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here as to just that kind of co-operation between manufacturers which is conspicuously lacking in England. Products of at least four manufacturers are combined most effectively in this kitchen, since colours really do match, and sizes really are standardised.

The result is compact and well planned, small, yet in no way cramped. It is remarkable how the kitchen measures up so well to the criteria laid down in the article, ie *Layout*, exactly as described – work surface, sink, work surface, cooker, etc; also, storage space within an arm's length of this area; *Height*, a standard 36-inch – a little high for me, but probably geared to the longer-legged American woman; *Lighting*, strip lighting above working surfaces; *Ventilation*, efficient extractor fan in the wall near cooker. An additional item which I have come to regard as more of a necessity than a luxury is the 'in-the-sink' garbage disposer.

The overall product might be criticised, by a European woman at any rate, as being too clinical. It is true that no 'natural' materials are used, but the semi-matt white paint and the satin finish stainless steel trim are undemanding, to say the least, and the excellent design details – grey Formica working surfaces, intelligent tap and handle design, unobtrusive trade names on equipment – make a good background which the inhabitant can infuse with plenty of her own personality. And above all, the place is a constant, practical joy to live and work in. I hate to think of having to leave it for a British counterpart.

MAURÏEN DAVISON
1619 Northwood Apartments
Ann Arbor
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USA

Kitchens: wasted woman-years

SIR: I was very interested in the kitchen exhibition in The Design Centre and also in the article in DESIGN but I was somewhat amused and surprised by the statement on page 43 that " . . . kitchen planning is a relatively new science . . . " and that "certain organisations in this field are . . . to a certain extent, pioneers". An excellent example of our English conservatism!

Nearly 30 years ago The New York Herald Tribune Institute did some real pioneering work under the direction of Dr Lillian Gilbreth, and published a pamphlet on kitchen design in which all the basic principles (and more) now rediscovered by our English research workers, were set out. I saw model kitchens in 1931, and still have the pamphlet first published in October 1930. I loaned it to Miss Elizabeth Denby many years ago and she gave it some publicity.

The complete lack of kitchen-design-sense of the vast majority of British architects and builders is pitiful, and also tragic, considering the number of unnecessary women-years of labour that are built into their creations.

Let us hope that your efforts may lead to something really irresistible by 1960.

E. WILLIAMSON
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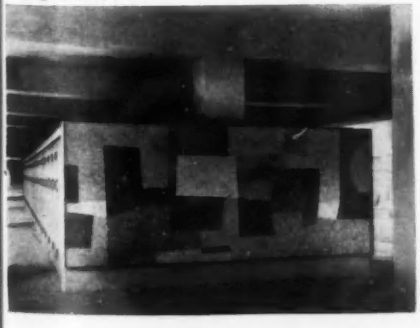
On the tiles

This mosaic mural, designed and executed by Malcolm Hughes, and incorporating seven different tesserae, is located near the main passenger lifts in a new block of maisonettes and flats built for St. Thomas' Hospital. The contractor was Wates Ltd, with L. G. Creed as consulting architect.



BOOKS

Form and function

Horatio Greenaugh, University of California Press, Alec Tiranti Ltd, 10s 6d

So Horatio Greenaugh has now risen from the exclusiveness of the University of California Press to the popular platform of the paperback. Ten years have done much to the American mind. In 1947 when the former edition came out hardly any functional architecture in the European twentieth century idiom existed in the United States; now the country is teeming with it. One can hope therefore that Greenaugh's uncannily prophetic sayings will find response, as they certainly will over here. Instead of reviewing the book it is perhaps a better service to it simply to quote from it:

Page 59 on the club of the savage and how it is gradually perfected "till the straggling and cumbersome machine becomes the compact, effective, and beautiful engine"; page 61 on ship design: "What academy of design, what research of connoisseurship, what imitation of the Greeks produced this marvel of construction? . . . Could we carry into our civil architecture the responsibilities that weigh on our shipbuilding, we should ere long have edifices superior to the Parthenon, for the purposes that we require"; page 75 etc: "I have spoken of embellishment as false beauty. I maintain that the first downward step is the introduction of the first inorganic, non-functional element, whether of shape or colour. If I be told that such a system as mine would produce nakedness, I accept the omen"; page 64 etc, on the division of architecture into monumental and organic, and the suggestion that buildings of the organic category, "formed to meet the wants of their occupants . . . may be called machines".

The book is full of such revealing and tantalising sayings, and as Greenaugh was born in 1805 and died in 1852, that is at the same time as Pugin, as he furthermore lived in Rome and was a sculptor of neo-classical statuary (eg the much maligned, more than life size, half-naked George Washington), there is much one would like to be told about the sources of his theories and the relation between theory and performance. Of that the present edition (which incidentally is a reprint from the same type as that used in 1947) gives too little. Did Greenaugh read Laugier, did he read Lodoli, did he read Pugin? Was he familiar with the English national schools of design ("I desire to see normal schools of structure and ornament, occupied in designing for the manufacturers")? It is certainly as wrong to consider Greenaugh an ancestor of today's functionalism as it is to consider Pugin one. In Pugin's case we know that his few topical sayings are embedded in Romanticism and Gothicism. In Greenaugh's case, the relation of his writings to his neo-classical work should be investigated in the same way.

NIKOLAUS PEVSNER

Space heating

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The orthodox methods of installation are briefly described for central heating, open fires and stoves, radiant and convected heating. The purpose is, of course, to reduce fire hazard, and there are warnings against a number of common building practices. It would have much greater value had there been more positive recommendations, especially for boilers where traditional practice is no longer proving satisfactory. The book is illustrated with line drawings.

J. BERESFORD-EVANS

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This month's cover was designed by Richard Negus and Philip Sharland. Both are free lance graphic designers, and they went into partnership in 1951. They have done work for BOAC as well as many of the leading agencies.

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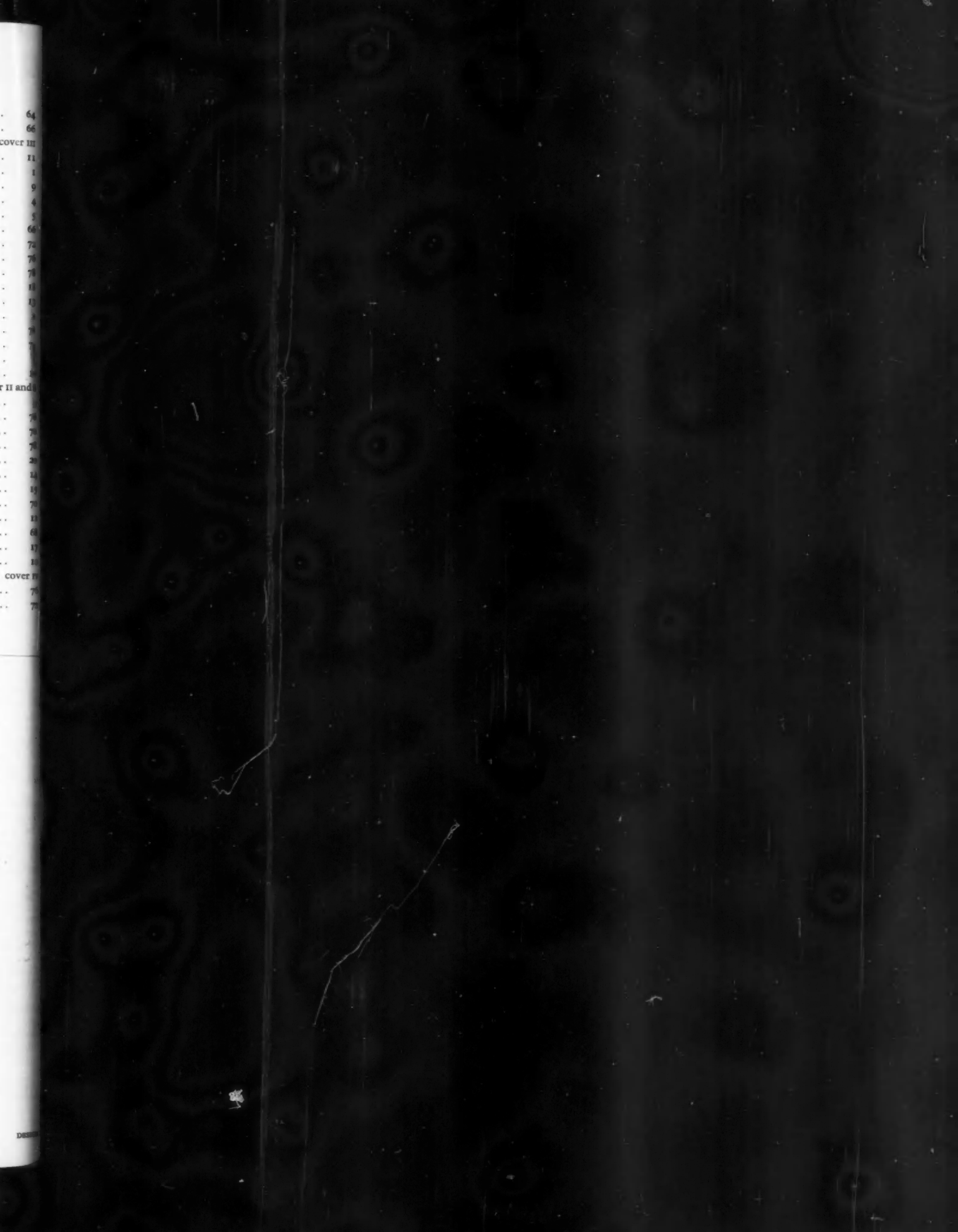
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